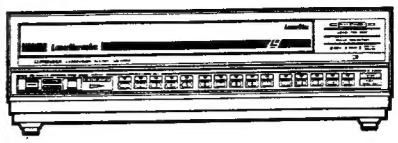
PIONEER®
The future of sound and vision.

Service Manual



ORDER NO.
ARP1949

LASERVISION PLAYER

LD-V200

- This manual is applicable to the HG type.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

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FJ MAR. 1990 Printed in Japan

1. SAFETY INFORMATION

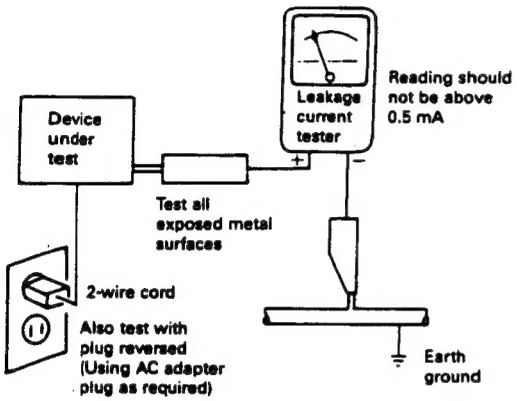
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120 V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

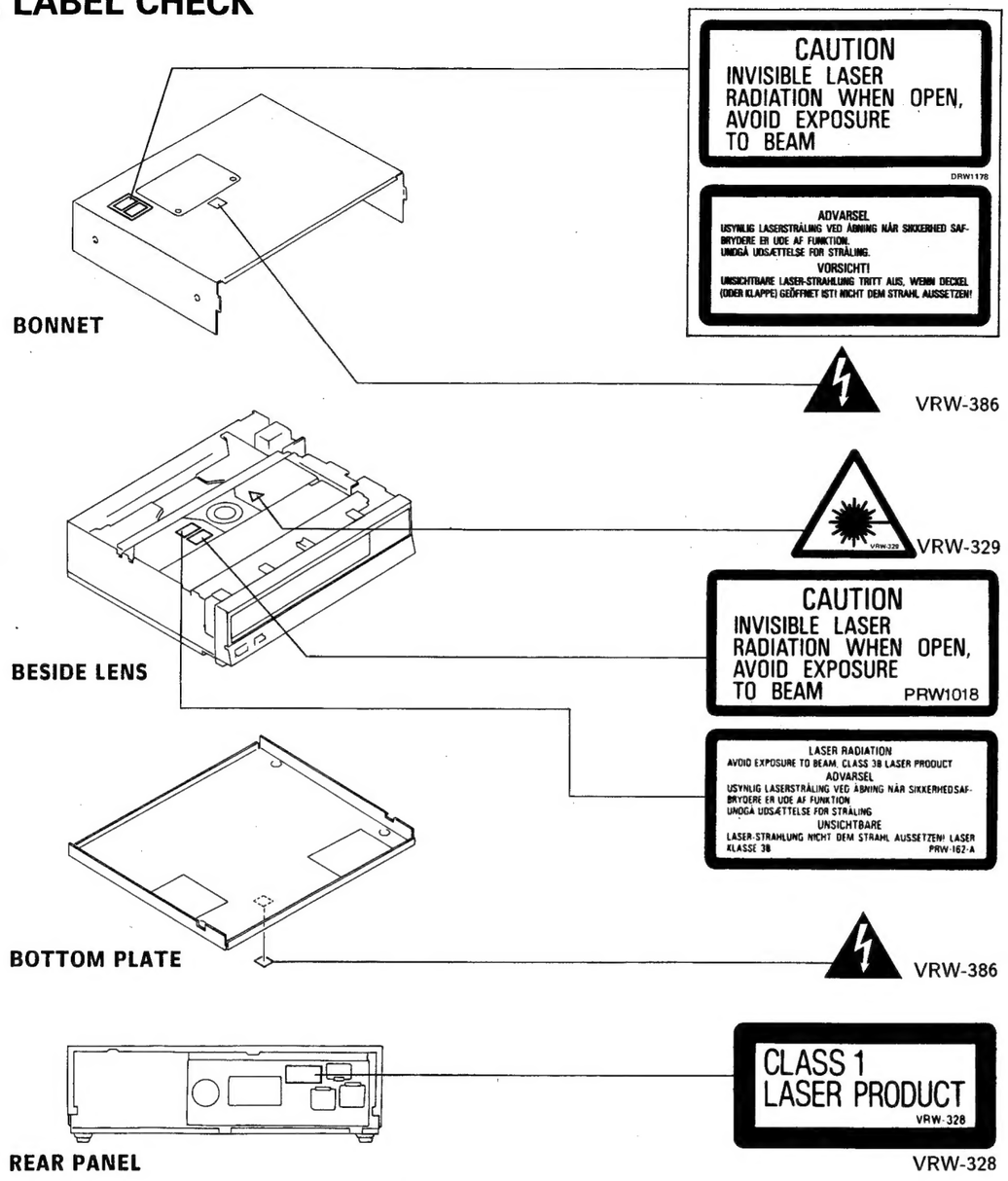
WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF HIGHER CLASS THAN 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LASER
Picture 1
Warning sign for laser radiation

2. LABEL CHECK

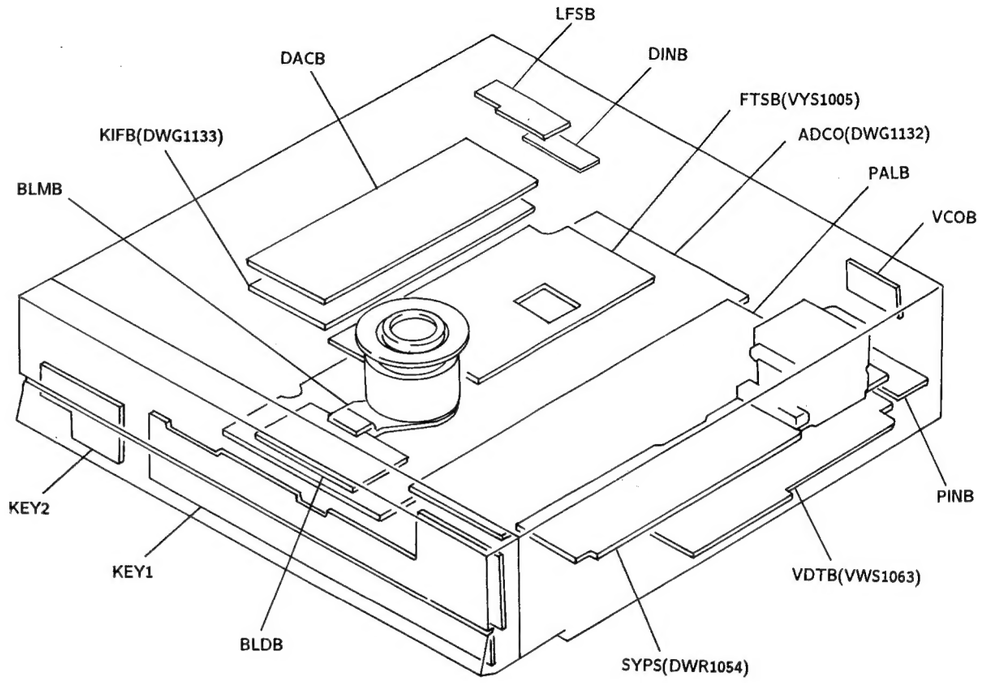


Additional Laser Caution

1. Laser Interlock Mechanism
The design prevents laser diode oscillation when Slide Switch S2, for detect of Disc Tray being put into the player, is not activated (IN SW signal : High level).
This Slide Switch S2 is activated by Rack Gear(R)(refer to page 6, No.1) when Disc Tray is put into the player(IN SW signal : Low level).
Therefore, laser diode oscillation will not continue without Disc Tray being placed in the player.
However, with Disc Tray out, the interlock will no longer function if Slide Switch S2 is manually activated.

2. When the cover is opened and Bridge (refer to page 9, No. 119) is removed, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 or higher laser beam.

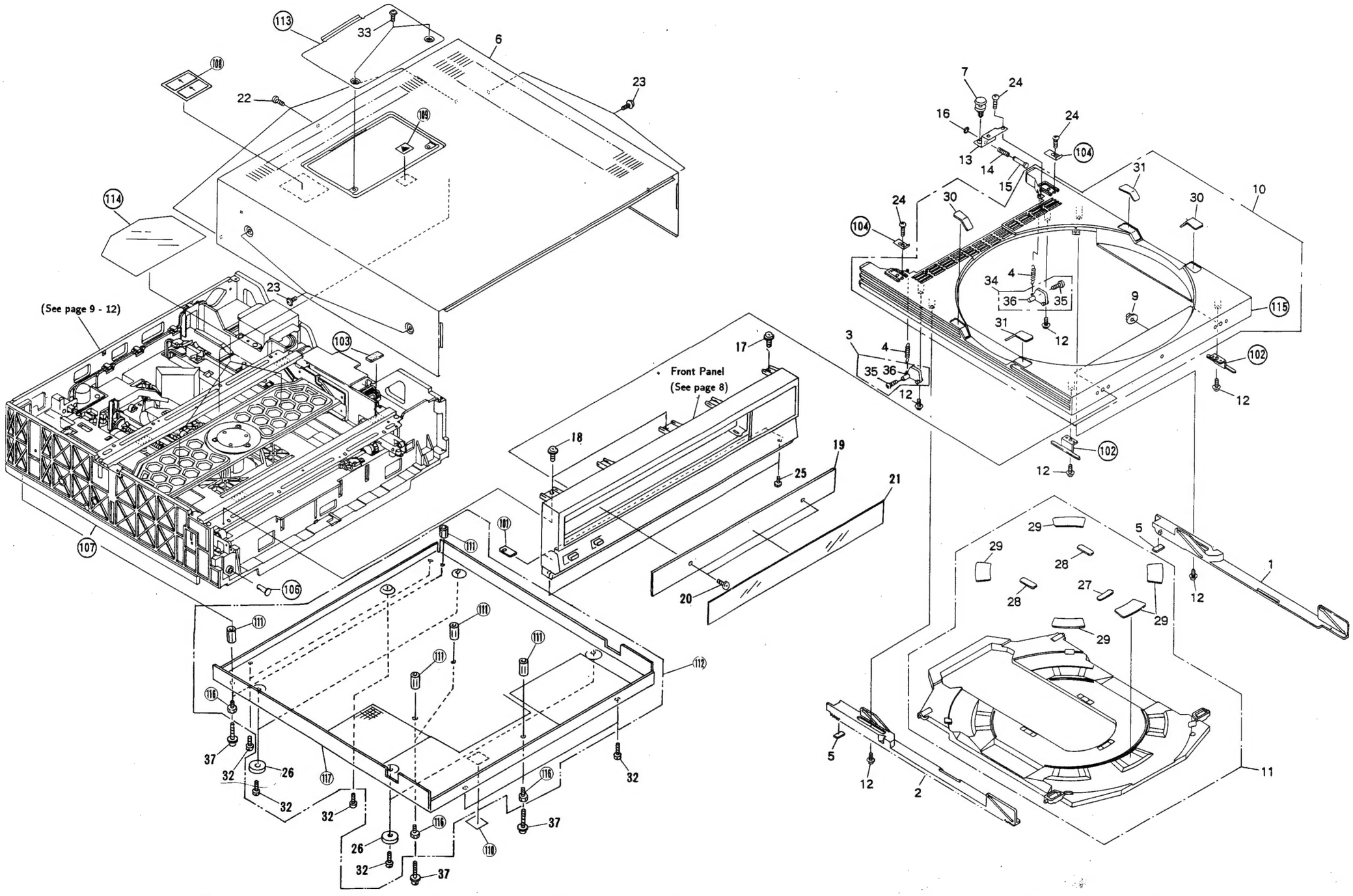
3. P.C.BOARDS LOCATIONS



◉	**ADCO**	DWG1132	Analog Demodulator and Control Board
◉	**SYPS**	DWR1054	System Power Supply Board
	LFSB		Line Filter and Power Switch
	BLDB		Brushless Motor Drive Board
	BLMB		Brushless Motor Board
	VCOB		Voltage Selector Board
◉	**FTSB**	VYS1005	Focus Tracking and Slider Servo Board
◉	**KIFB**	DWG1133	Key Interface Board
◉	**DACB**	DWK1010	D/A Converter Board
	KEY1		Key Matrix and LED Drive
	KEY2		LED and Mode switch
	VDTB		Video and TBC Board
	PALB		PAL Video Process Board
	DINB		DIN type Output Board
	PINB		PIN type Output Board

4. EXPLODED VIEWS AND PARTS LIST

4.1 EXTERIOR



NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

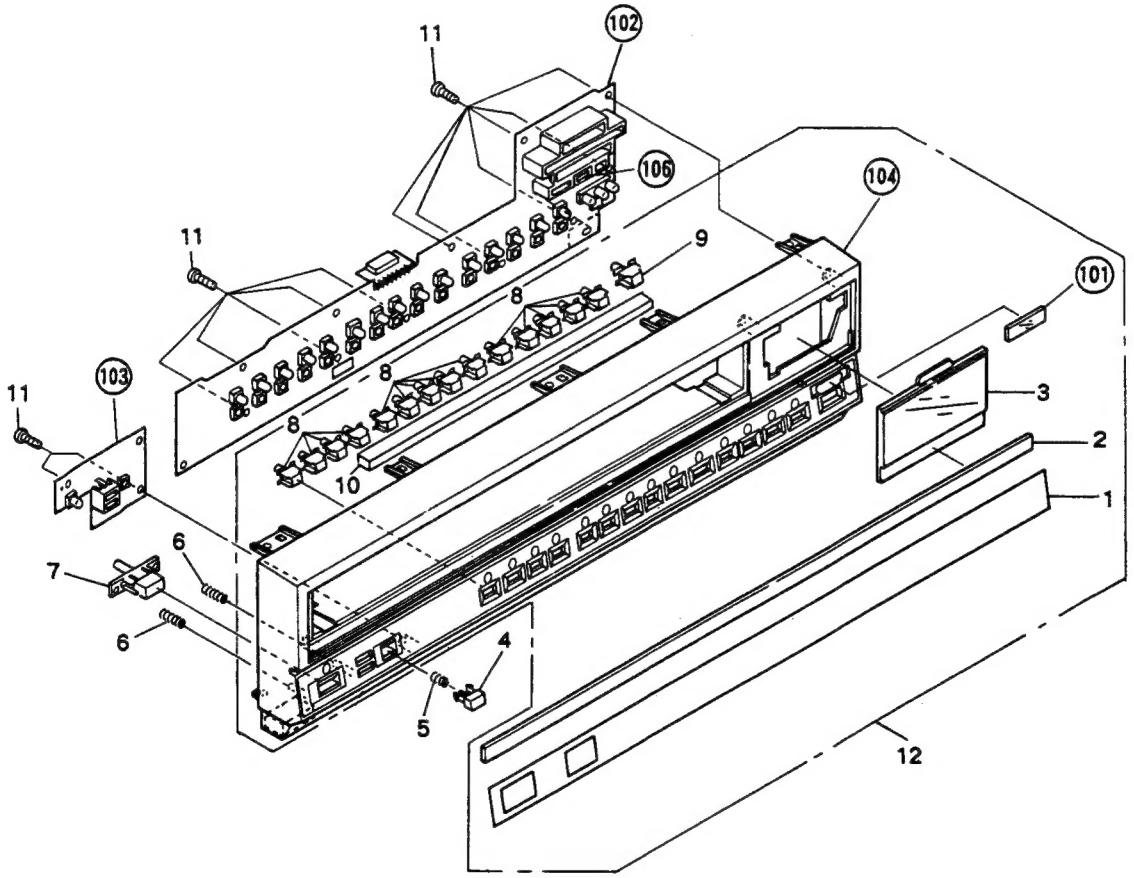
Mark	No.	Part No.	Description
	1	VNL1061	Rack gear (R)
	2	VNL1060	Rack gear (L)
	3	DXB1101	Stopper (L) assembly
	4	VBH1021	Stopper spring
	5	VEB1041	Rack dump rubber
	6	DXX1256	Bonnet assembly-S
	7	VEC1059	Plastic rivet
	8		• • • • •
	9	VBN-005	Nut
	10	DXA1101	Carry assembly
	11	DXA1102	Container assembly
	12	IPZ30P080FCU	Screw
	13	DXB1100	Switch holder assembly
	14	DBH1039	Spring
	15	DLA1155	Switch shaft
	16	YE20FUC	"E" ring 2
	17	APZ30P080FCU	Screw
	18	BBZ30P050FCC	Screw
	19	DNK1159	Loading panel
	20	PMA40P100FMC	Screw
	21	DAH1293	Carry sheet
	22	BBT30P060FBR	Screw
	23	BPZ40P100FBR	Screw
	24	BPZ30P080FCU	Screw
	25	APZ30P080FCU	Screw
	26	DEC1124	Leg
	27	DED1030	Disc pad A
	28	DED1031	Disc pad B
	29	DED1032	Disc pad C
	30	DED1033	Disc pad D
	31	DED1034	Disc pad E
	32	BBZ30P060FMC	Screw
	33	AMZ30P060FZK	Screw
	34	DXB1102	Stopper (R) assembly
	35	PPZ30P060FMC	Screw
	36	VNL1062	Stopper
	37	ABZ30P300FMC	Screw

Mark	No.	Part No.	Description
	101		Front plate
	102		Rack holder
	103		Cushion A
	104		Stopper plate
	105		• • • • •
	106		PSW cap
	107		Base assembly
	108		Caution label
	109		Caution label
	110		Caution label
	111		Collar
	112		Bottom plate assembly
	113		Bonnet cover assembly
	114		Absorber
	115		Carry
	116		Bush
	117		Bottom plate

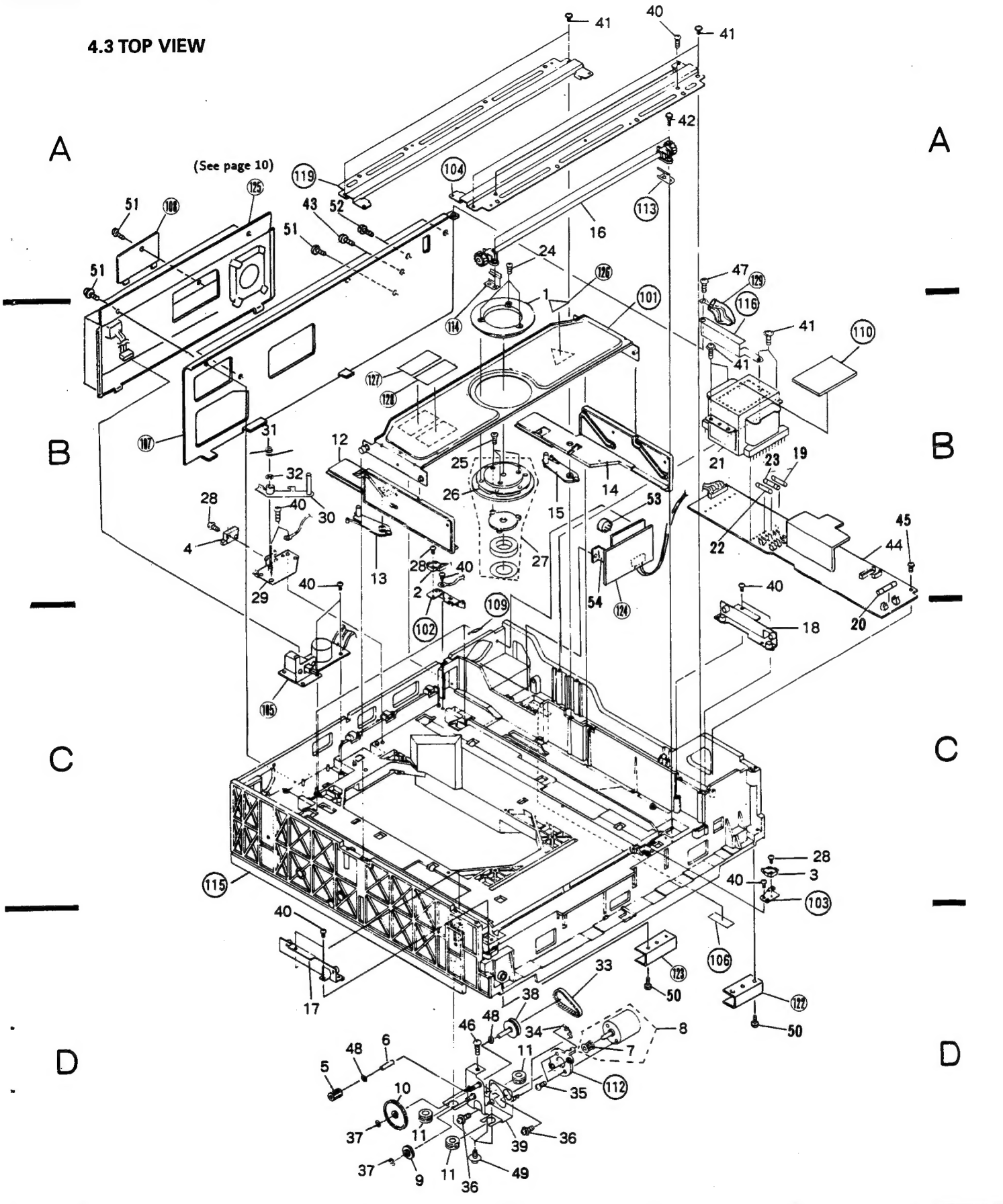
4.2 FRONT PANEL VIEW

Mark	No.	Part No.	Description
	1	DAH1290	Display sheet A
	2	DAH1394	Display sheet B
	3	DAH1292	Acrylic panel
	4	DAC-136	Knob C
	5	VBH-127	Spring
	6	DBH-128	Power spring
	7	DAC-137	Power knob
	8	DNK1311	Tact knob A
	9	DNK1312	Tact knob B
	10	DEC1127	Cushion
	11	BPZ30P080FCU	Screw
	12	DXX1354	Front panel assembly-S

Mark	No.	Part No.	Description
	101		Sheet
	102		KEY1 assembly
	103		KEY2 assembly
	104		Front panel
	105		• • • • •
	106		LED holder



4.3 TOP VIEW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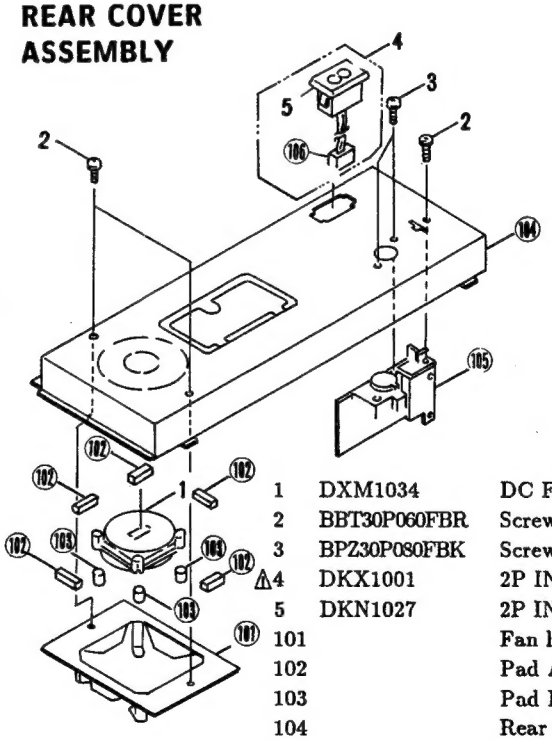
Mark	No.	Part No.	Description
	1	VNL1072	Clamper head
	2	VSK-010	Slide switch (S2) (TABLE/IN)
	3	VSK-012	Slide switch (S3) (TABLE/OUT)
	4	VSK-012	Slide switch (S5) (MID)
	5	DNK1313	Gear (A)
	6	DLA1156	Gear (A) shaft
	7	VNL1051	Motor pulley
	8	DXX1185	Loading motor assembly-S
	9	VNL1010	Gear (C)
	10	VNL1064	Gear (B)
	11	VEB1025	Rubber bushing
	12	VNL1068	Clamp cam (L)
	13	VNL1070	Lock lever (L)
	14	VNL1069	Clamp cam (R)
	15	VNL1071	Lock lever (R)
	16	DXB1109	Synchronized gear assembly
	17	DXB1106	Roller plate (L) assembly
	18	VXA1162	Roller plate (R) assembly
⚠	19	REK-094	Fuse(250MA)(FU5)
⚠	20	VCX-006	Hour meter
⚠	21	DTT1038	Power transformer
⚠	22	REK-105	Fuse (3.15A) (FU1,FU2)
⚠	23	REK-103	Fuse (2A) (FU3,FU4)
	24	BPZ26P060FCU	Screw
	25	BMZ20P050FCU	Screw
	26	VNL1073	Disc clamper
	27	VXX1114	Clamper assembly-S
	28	BMZ20P080FCU	Screw
	29	DXB1107	SW base assembly
	30	DXB1108	SW lever assembly
	31	DBH1040	SW lever spring
	32	WT21D060D025	Washer
	33	DEB1055	Timing belt
	34	DBH1057	M holder spring
	35	PMA30P050FMC	Screw
	36	PMB30P060FMC	Screw
	37	WT32D060D050	Washer
	38	DXB1104	Timing pulley assembly
	39	DXB1105	M holder assembly
	40	BPZ30P050FCU	Screw
	41	APZ30P080FCU	Screw
	42	VBA1002	Screw
	43	BPZ30P080FBR	Screw
◉	44	DWR1054	SYPS assembly
	45	BBZ30P060FCU	Screw
	46	PMB30P080FMC	Screw
	47	BBZ30P060FCC	Screw
	48	WA32D080D025	Washer
	49	VBA1003	Screw
	50	BPZ30P080FCU	Screw
	51	BBT30P060FBR	Screw
	52	BBT30P100FZK	Screw
⚠	53	VSB-001	Voltage selector
	54	VNE1211	SW mount plate

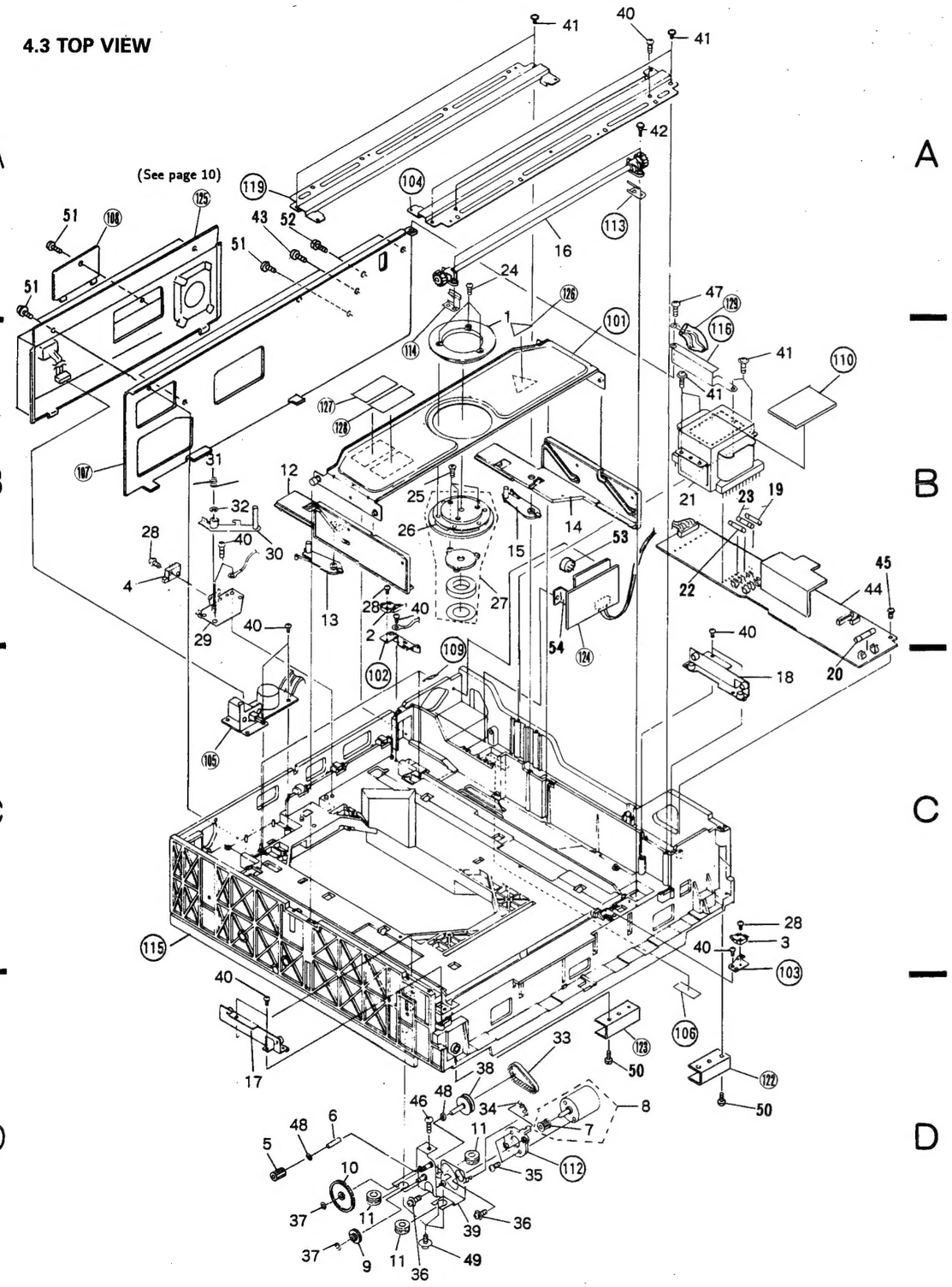
Mark	No.	Part No.	Description
	101		Clamper holder assembly
	102		Switch holder (A)
	103		Switch holder (B)
	104		Bridge
	105		LFSB assembly
	106		Cover
	107		Rear panel
	108		Rear cover
	109		Base dump rubber
	110		Transformer cushion
	111		• • • • •
	112		Motor attachment plate
	113		Synchronized plate (R)
	114		Synchronized plate (L)
	115		Base
	116		Earth plate
	117		• • • • •
	118		• • • • •
	119		Bridge
	120		• • • • •
	121		• • • • •
	122		Bottom plate stay R
	123		Bottom plate stay L
	124		VCOB assembly
	125		Rear cover assembly
	126		Caution label (G)
	127		Caution label (for Laser)
	128		Caution label (for Laser)
	129		UL vinyl tape

REAR COVER ASSEMBLY



1	DXM1034	DC Fan
2	BBT30P060FBR	Screw
3	BPZ30P080FBK	Screw
⚠4	DKX1001	2P INLET assembly
5	DKN1027	2P INLET
101		Fan holder
102		Pad A
103		Pad B
104		Rear cover assembly
105		DINB assembly
106		Connector

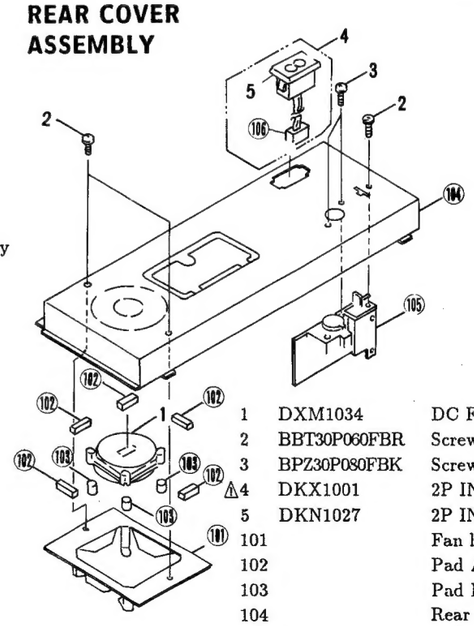
4.3 TOP VIEW



Mark	No.	Part No.	Description
	1	VNL1072	Clamper head
	2	VSK-010	Slide switch (S2) (TABLE/IN)
	3	VSK-012	Slide switch (S3) (TABLE/OUT)
	4	VSK-012	Slide switch (S5) (MID)
	5	DNK1313	Gear (A)
	6	DLA1156	Gear (A) shaft
	7	VNL1051	Motor pulley
	8	DXX1185	Loading motor assembly-S
	9	VNL1010	Gear (C)
	10	VNL1064	Gear (B)
	11	VEB1025	Rubber bushing
	12	VNL1068	Clamp cam (L)
	13	VNL1070	Lock lever (L)
	14	VNL1069	Clamp cam (R)
	15	VNL1071	Lock lever (R)
	16	DXB1109	Synchronized gear assembly
	17	DXB1106	Roller plate (L) assembly
	18	VXA1162	Roller plate (R) assembly
⚠	19	REK-094	Fuse(250MA)(FU5)
⚠	20	VCX-006	Hour meter
⚠	21	DTT1038	Power transformer
⚠	22	REK-105	Fuse (3.15A) (FU1,FU2)
⚠	23	REK-103	Fuse (2A) (FU3,FU4)
	24	BPZ26P060FCU	Screw
	25	BMZ20P050FCU	Screw
	26	VNL1073	Disc clamper
	27	VXX1114	Clamper assembly-S
	28	BMZ20P080FCU	Screw
	29	DXB1107	SW base assembly
	30	DXB1108	SW lever assembly
	31	DBH1040	SW lever spring
	32	WT21D060D025	Washer
	33	DEB1055	Timing belt
	34	DBH1057	M holder spring
	35	PMA30P050FMC	Screw
	36	PMB30P060FMC	Screw
	37	WT32D060D050	Washer
	38	DXB1104	Timing pulley assembly
	39	DXB1105	M holder assembly
	40	BPZ30P050FCU	Screw
	41	APZ30P080FCU	Screw
	42	VBA1002	Screw
	43	BPZ30P080FBR	Screw
◉	44	DWR1054	SYPS assembly
	45	BBZ30P060FCU	Screw
	46	PMB30P080FMC	Screw
	47	BBZ30P060FCC	Screw
	48	WA32D080D025	Washer
	49	VBA1003	Screw
	50	BPZ30P080FCU	Screw
	51	BBT30P060FBR	Screw
	52	BBT30P100FZK	Screw
⚠	53	VSB-001	Voltage selector
	54	VNE1211	SW mount plate

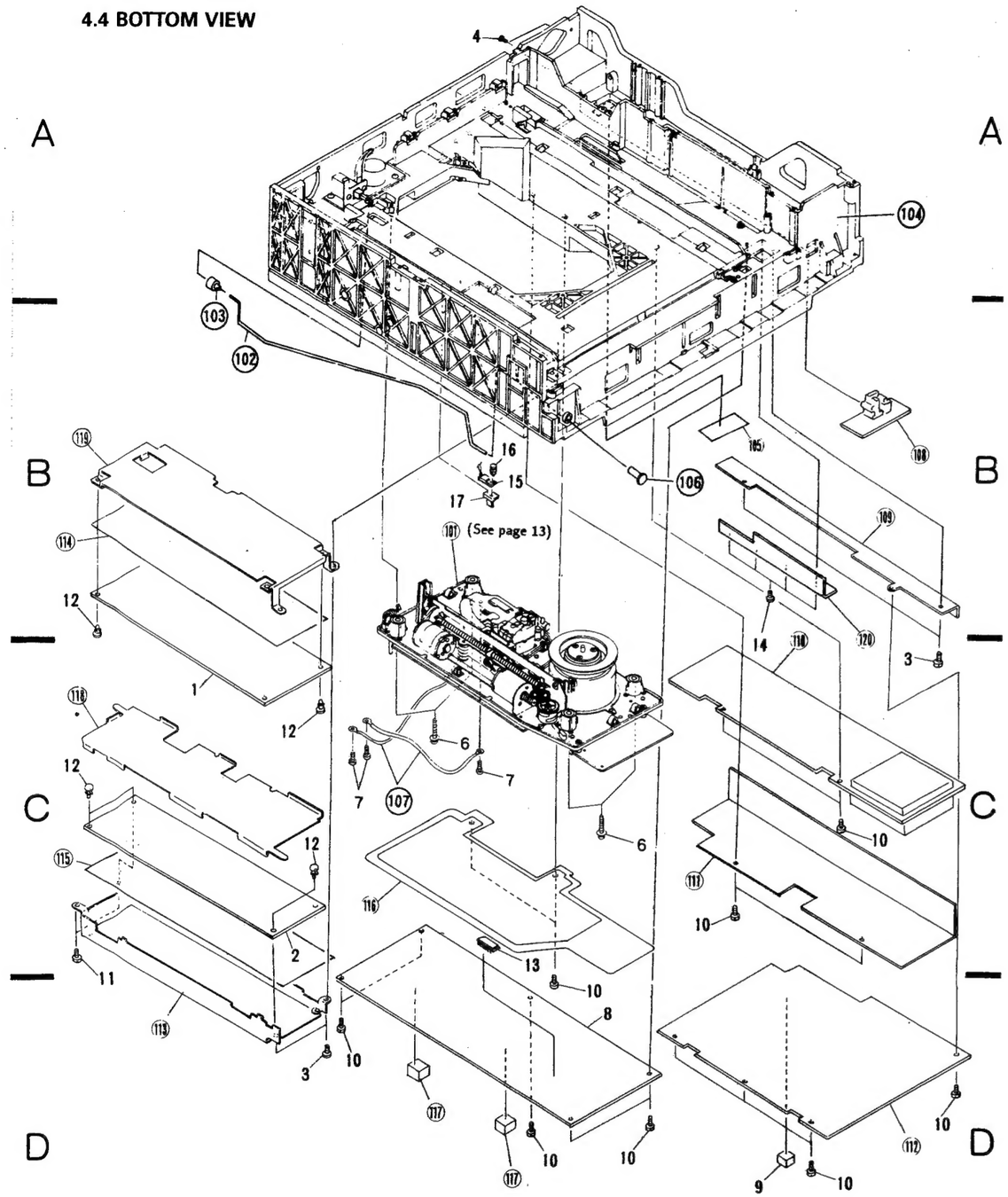
Mark	No.	Part No.	Description
	101		Clamper holder assembly
	102		Switch holder (A)
	103		Switch holder (B)
	104		Bridge
	105		LFSB assembly
	106		Cover
	107		Rear panel
	108		Rear cover
	109		Base dump rubber
	110		Transformer cushion
	111		• • • • •
	112		Motor attachment plate
	113		Synchronized plate (R)
	114		Synchronized plate (L)
	115		Base
	116		Earth plate
	117		• • • • •
	118		• • • • •
	119		Bridge
	120		• • • • •
	121		• • • • •
	122		Bottom plate stay R
	123		Bottom plate stay L
	124		VCOB assembly
	125		Rear cover assembly
	126		Caution label (G)
	127		Caution label (for Laser)
	128		Caution label (for Laser)
	129		UL vinyl tape

REAR COVER ASSEMBLY



1	DXM1034	DC Fan
2	BBT30P060FBR	Screw
3	BPZ30P080FBK	Screw
⚠4	DKX1001	2P INLET assembly
5	DKN1027	2P INLET
101		Fan holder
102		Pad A
103		Pad B
104		Rear cover assembly
105		DINB assembly
106		Connector

4.4 BOTTOM VIEW

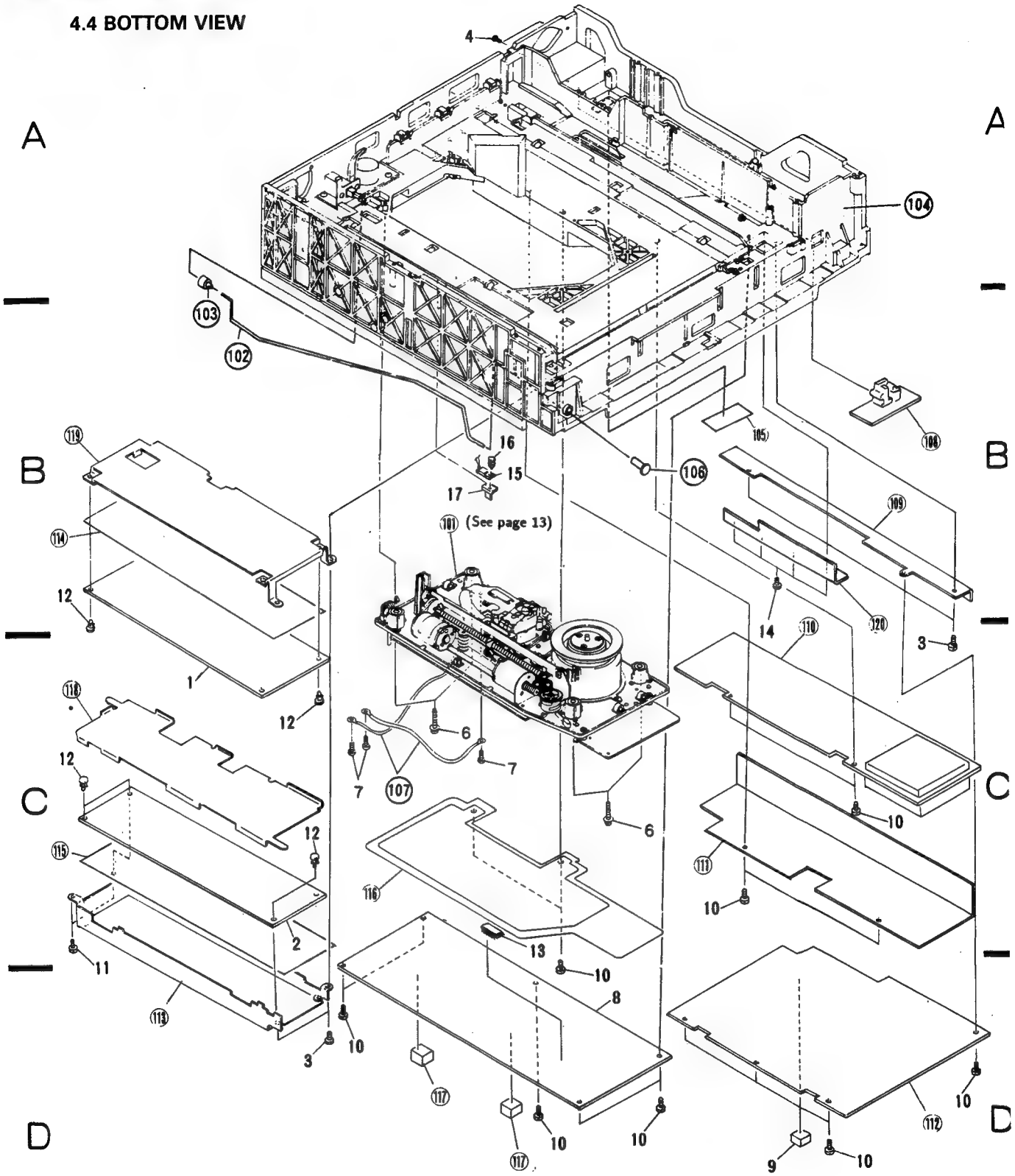


4.5 MECHANISM ASSEMBLY VIEW

Mark	No.	Part No.	Description
◉	1	DWG1133	KIFB assembly
◉	2	DWK1010	DACB assembly
	3	BPZ30P080FCU	Screw
	4	BPZ30P080FBR	Screw
	5	BBZ30P100FZK	Screw
	6	VBA1004	Screw
	7	BBZ30P060FMC	Screw
◉	8	DWG1132	ADCO assembly
	9	PNM1059	Cushion
	10	IBZ30P060FMC	Screw
	11	BPZ30P060FCU	Screw
	12	VEC-143	Plastic rivet
	13	DYW1074	Program PROM-S (IC204)
	14	APZ30P080FCU	Screw
	15	DCX1003	Dew sensor
	16	DEC-176	Plastic rivet
	17	DBK-108	Sensor clip
	101		Mechanism assembly
	102		PSW joint
	103		Joint cap
	104		Base assembly
	105		Cover
	106		PSW cap
	107		Earth lug assembly
	108		PINB assembly
	109		PCB stay-M
	110		PALB assembly
	111		Shield cover
	112		VDTB assembly
	113		Shield case (U)
	114		Sheet (A)
	115		Sheet (B)
	116		Sheld sheet
	117		Spacer cushion
	118		Shield case (M)
	119		Shield case (T)
	120		Reinforced plate

Mark	No.	Part No.	Description
	1	DXB1119	Screw nut assembly
	2	VEB1029	Timing belt
	3	DLA1153	Carriage shaft
	4	VBH1040	Slider spring
	5	DXX1180	Spindle motor assembly-S
	6	VEB1008	Rubber spacer
	7	VBH1025	Centering spring
	8	DLA1152	Centering hab
	9	VNE1103	Plate
	10	VXX1082	Tilt motor assembly-S
	11	VNL1085	Worm
	12	VXA1106	TL base assembly
	13	VNL1079	Cam gear
	14	VNL1078	Gear
	15	VXX1083	Slider motor assembly-S
	16	VNL1051	Motor pullery
	17	VNL1080	Slider
	18	VNE1100	Lock plate
	19	VXA1159	Roller assembly
	20	VSK1003	Slide switch (S4) (SLIDER/PARK)
	21	VBH1022	Tilt spring
	22	VNL1077	Cam
	23	DWY1008	Pick-up assembly
	24	VLL1107	Bolt 2.6 × 6
	25	VBK1010	SN spring
	26	DBH1052	Carriage spring
	27	CBZ30P080FCC	Screw
	28	WT21D050D050	Washer
	29	PMA30P040FCU	Screw
	30	SMZ30H250FBT	Bolt 3 × 25
	31	PPZ20P050FMC	Screw
	32	SMZ30H080FBT	Bolt 3 × 8
	33	PMA20P040FCU	Screw
	34	PMB30P060FCU	Screw
	35	IPZ30P080FCU	Screw
	36	VYS1005	FTSB assembly
	37	BPZ30P080FCU	Screw
	38	VLL-378	Bolt 8
	39		• • • • •
	40	VLL-183	Screw
	41	VNL1076	Tilt base
	42	VNE1286	M holder
	43	VEB1051	Slider cushion
	44	VEB1072	Rubber washer
	45	DNH1257	Spacer A
	101		• • • • •
	102		• • • • •
	103		PU holder
	104		Nut
	105		Mechanism base
	106		BLDB assembly
	107		FTS Sheet
	108		Base plate
	109		Cord clamper

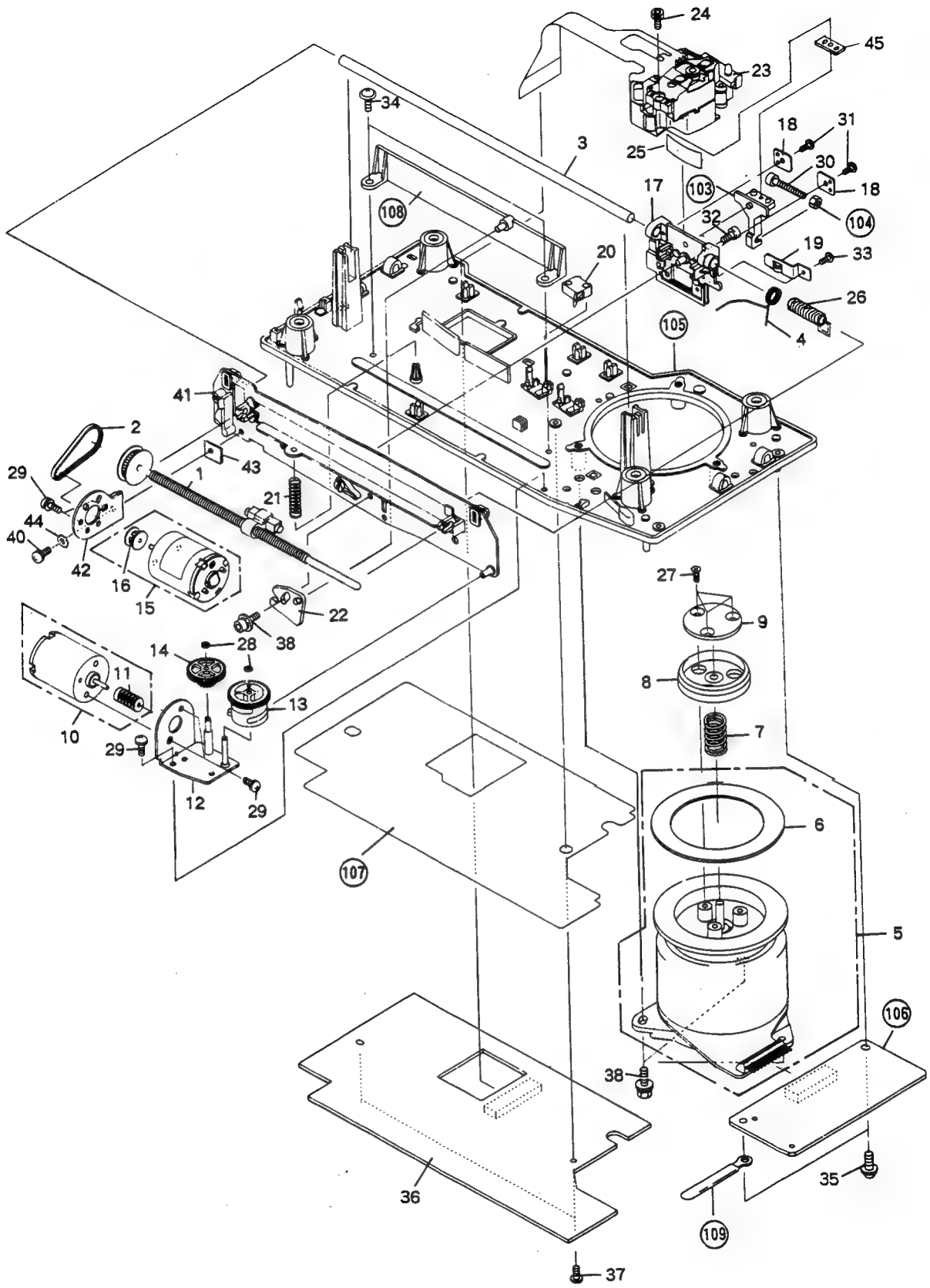
4.4 BOTTOM VIEW



4.5 MECHANISM ASSEMBLY VIEW

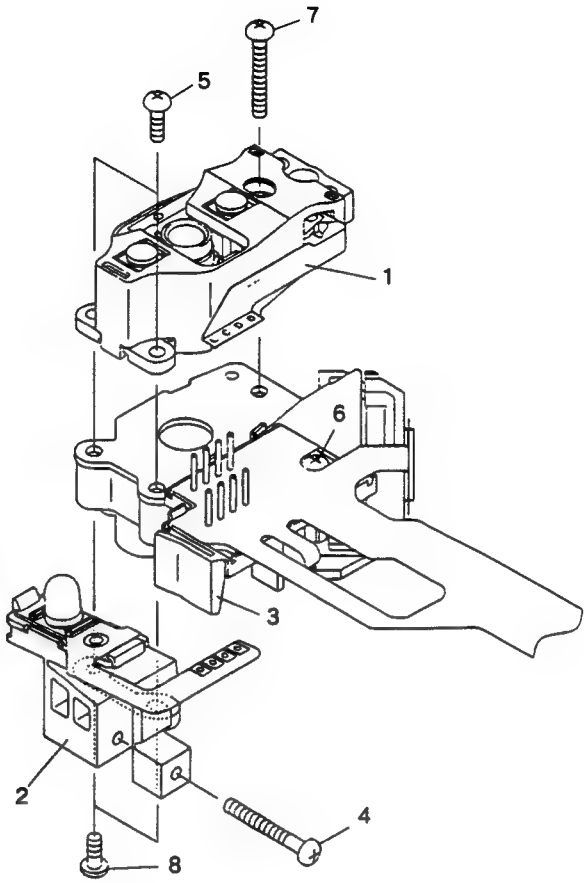
Mark	No.	Part No.	Description
◉	1	DWG1133	KIFB assembly
◉	2	DWK1010	DACB assembly
	3	BPZ30P080FCU	Screw
	4	BPZ30P080FBR	Screw
	5	BBZ30P100FZK	Screw
	6	VBA1004	Screw
	7	BBZ30P060FMC	Screw
◉	8	DWG1132	ADCO assembly
	9	PNM1059	Cushion
	10	IBZ30P060FMC	Screw
	11	BPZ30P060FCU	Screw
	12	VEC-143	Plastic rivet
	13	DYW1074	Program PROM-S (IC204)
	14	APZ30P080FCU	Screw
	15	DCX1003	Dew sensor
	16	DEC-176	Plastic rivet
	17	DBK-108	Sensor clip
	101		Mechanism assembly
	102		PSW joint
	103		Joint cap
	104		Base assembly
	105		Cover
	106		PSW cap
	107		Earth lug assembly
	108		PINB assembly
	109		PCB stay-M
	110		PALB assembly
	111		Shield cover
	112		VDTB assembly
	113		Shield case (U)
	114		Sheet (A)
	115		Sheet (B)
	116		Sheld sheet
	117		Spacer cushion
	118		Shield case (M)
	119		Shield case (T)
	120		Reinforced plate

Mark	No.	Part No.	Description
	1	DXB1119	Screw nut assembly
	2	VEB1029	Timing belt
	3	DLA1153	Carriage shaft
	4	VBH1040	Slider spring
	5	DXX1180	Spindle motor assembly-S
	6	VEB1008	Rubber spacer
	7	VBH1025	Centering spring
	8	DLA1152	Centering hab
	9	VNE1103	Plate
	10	VXX1082	Tilt motor assembly-S
	11	VNL1085	Worm
	12	VXA1106	TL base assembly
	13	VNL1079	Cam gear
	14	VNL1078	Gear
	15	VXX1083	Slider motor assembly-S
	16	VNL1051	Motor pullery
	17	VNL1080	Slider
	18	VNE1100	Lock plate
	19	VXA1159	Roller assembly
	20	VSK1003	Slide switch (S4) (SLIDER/PARK)
	21	VBH1022	Tilt spring
	22	VNL1077	Cam
	23	DWY1008	Pick-up assembly
	24	VLL1107	Bolt 2.6 × 6
	25	VBK1010	SN spring
	26	DBH1052	Carriage spring
	27	CBZ30P080FCC	Screw
	28	WT21D050D050	Washer
	29	PMA30P040FCU	Screw
	30	SMZ30H250FBT	Bolt 3 × 25
	31	PPZ20P050FMC	Screw
	32	SMZ30H080FBT	Bolt 3 × 8
	33	PMA20P040FCU	Screw
	34	PMB30P060FCU	Screw
	35	IPZ30P080FCU	Screw
	36	VYS1005	FTSB assembly
	37	BPZ30P080FCU	Screw
	38	VLL-378	Bolt 8
	39		• • • • •
	40	VLL-183	Screw
	41	VNL1076	Tilt base
	42	VNE1286	M holder
	43	VEB1051	Slider cushion
	44	VEB1072	Rubber washer
	45	DNH1257	Spacer A
	101		• • • • •
	102		• • • • •
	103		PU holder
	104		Nut
	105		Mechanism base
	106		BLDB assembly
	107		FTS Sheet
	108		Base plate
	109		Cord clamper


24
45
23
34
3
25
18
31
30
18
17
103
104
32
20
19
33
26
4
105
108
41
2
43
1
21
29
44
40
42
16
15
22
38
14
28
11
13
10
29
12
29
27
9
8
7
6
107
5
106
38
36
35
109
37

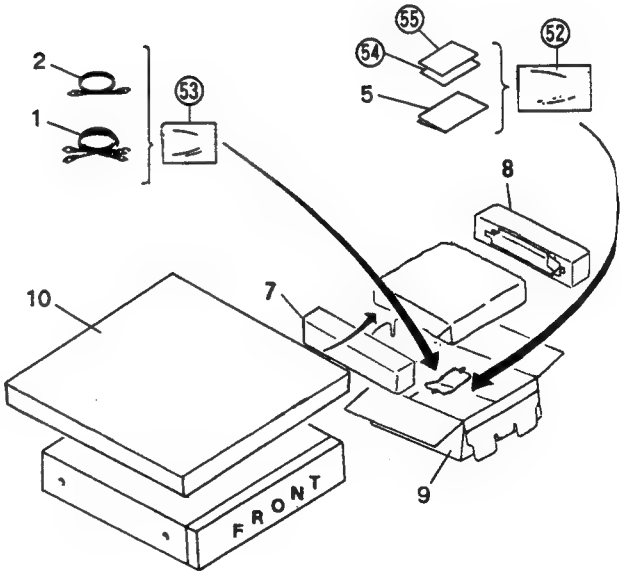
4.6 PICK-UP ASSEMBLY VIEW

Mark	No.	Part No.	Description
	1	DXX1254	Actuator assembly
	2	VXX1094	Sensor assembly-S
	3	VXX1095	Prepickup assembly
	4	PBZ20P160FMC	Screw
	5	PMA20P060FMC	Screw
	6	PMA20P080FMC	Screw
	7	PMA20P140FMC	Screw
	8	PMB20P050FMC	Screw



5. PACKING

Mark	No.	Part No.	Description
	1	VDE-010	Connection cord
	2	VDE-014	Video cable
	3		• • • • •
	4		• • • • •
	5	DRB1024	Operating instructions (English,French,German,Italian, Spanish)
	6		• • • • •
	7	DHA1078	Pad (L)
	8	DHA1079	Pad (R)
	9	DHG1159	Packing case
	10	VHL1005	Mirror mat bag
	51		• • • • •
	52		Polyethlene bag
	53		Polyethlene bag
	54		Caution card
	55		Caution card (EW)



6. SCHEMATIC DIAGRAMS AND P.C.BOARDS PATTERN

6.1 OVERALL WIRING

1. RESISTORS:
Indicated in Ω, 1/8, 1/4W, ±5% tolerance unless otherwise noted k:kΩ, M:MΩ, (F):±1%, (G):±2%, (K):±10%, (M):±20% tolerance.

2. CAPACITORS:
Indicated in capacity(μF)/voltage (V) unless otherwise noted P:pF.
Indication without voltage is 50V except electrolytic capacitor.

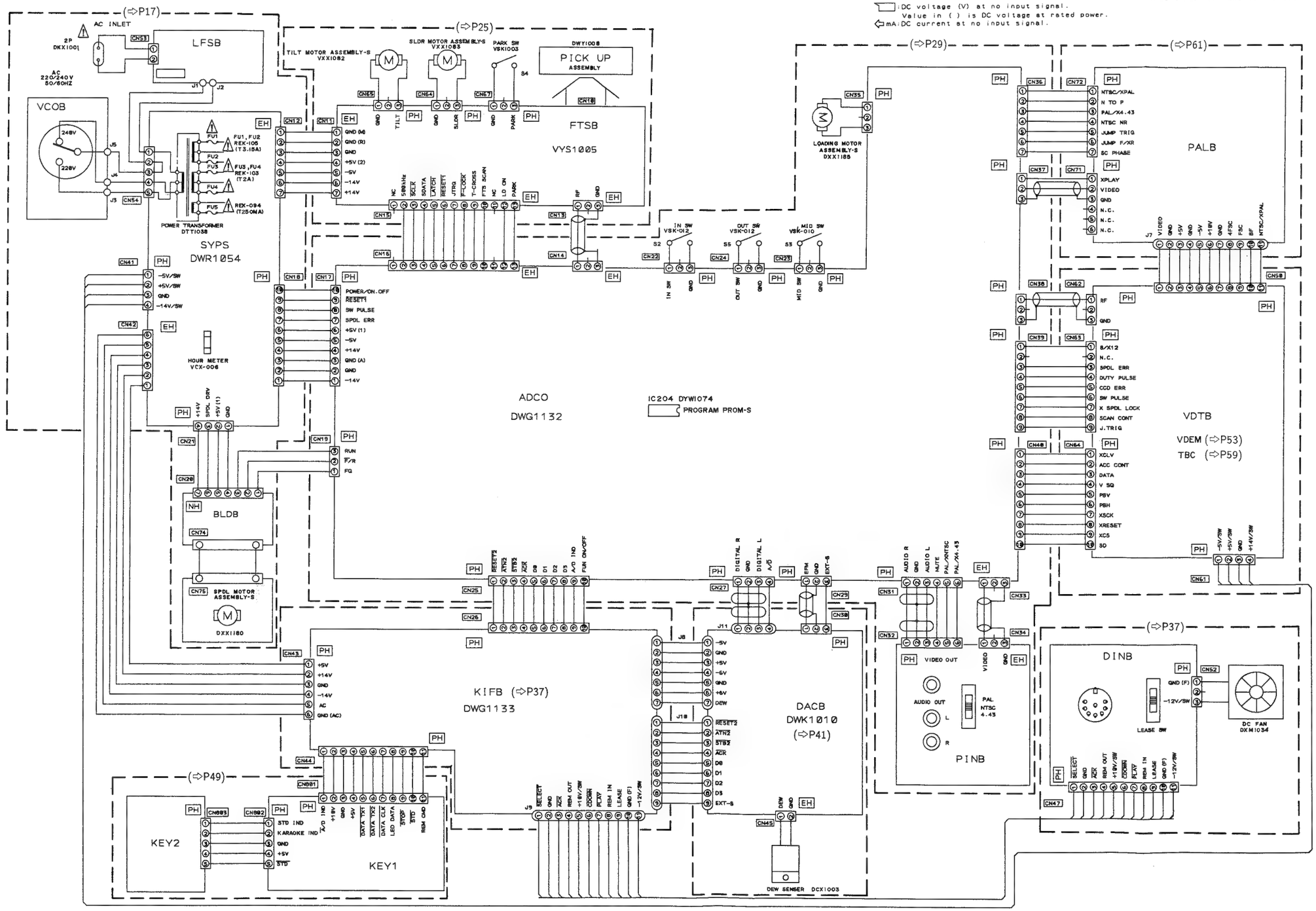
3. VOLTAGE, CURRENT
:DC voltage (V) at no input signal.
Value in ( ) is DC voltage at rated power.
⇦mA:DC current at no input signal.

4. OTHERS
➡:Signal route.
⊘:Adjusting point.

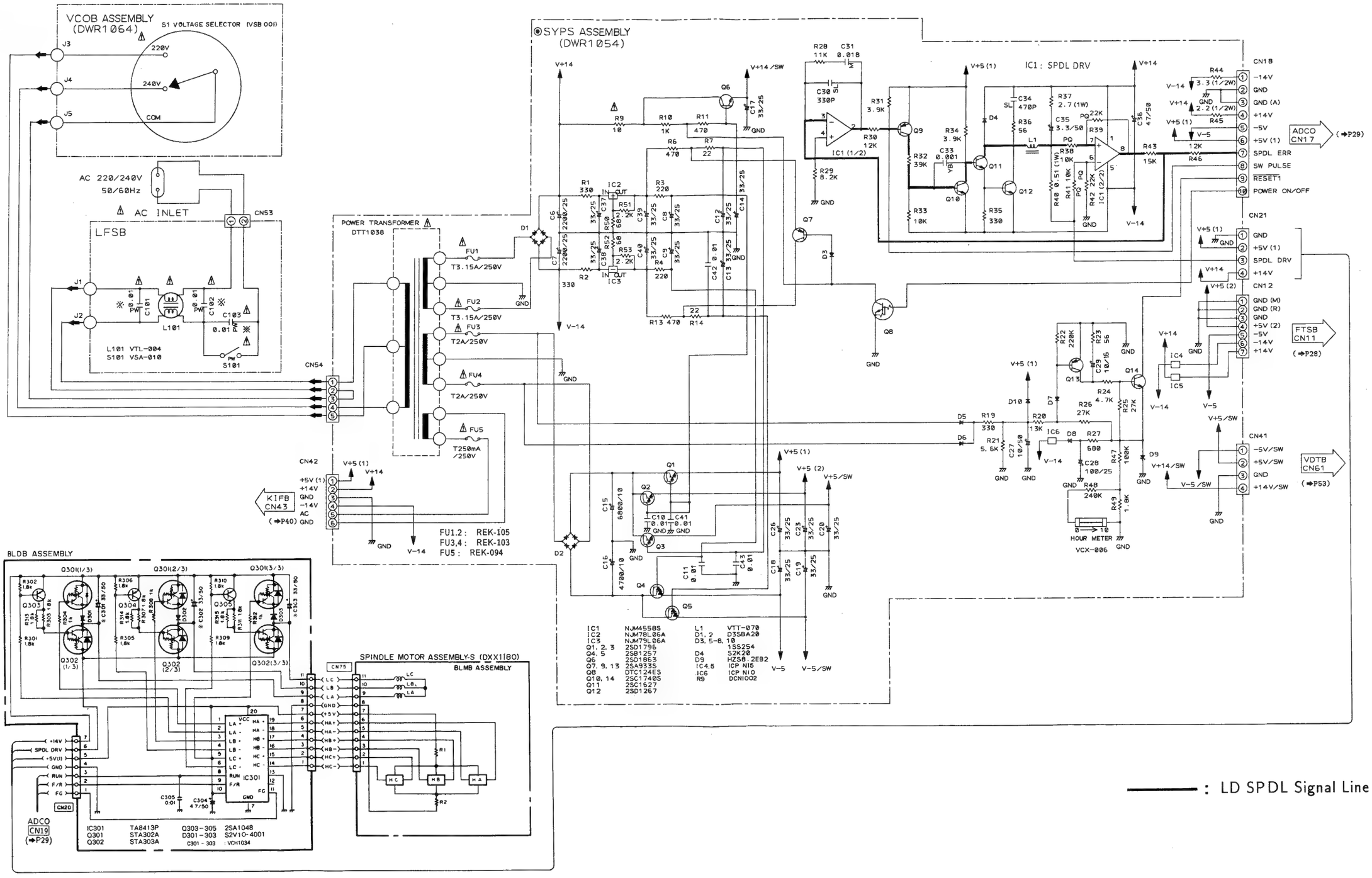
The ⚠ mark found on some component parts indicates the importance of the safty factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

✱ marked capacitor and resistor have parts number.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

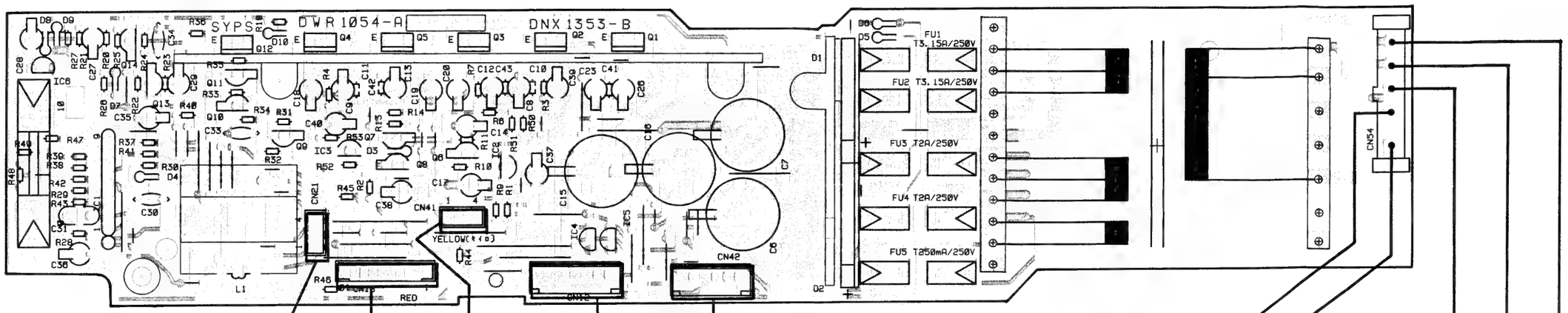


6.2 SYPS, BLDB, BLMB, VCOB AND LFSB ASSEMBLY



: LD SPDL Signal Line

SYPS ASSEMBLY (DWR1054)



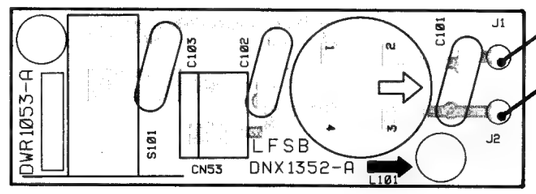
ADCO ASSEMBLY CN17

VDTB ASSEMBLY CN61

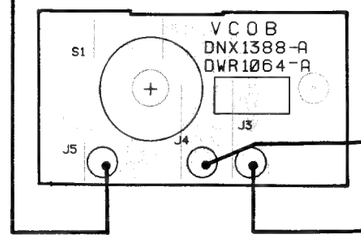
FTSB ASSEMBLY CN11

KIFB ASSEMBLY CN43

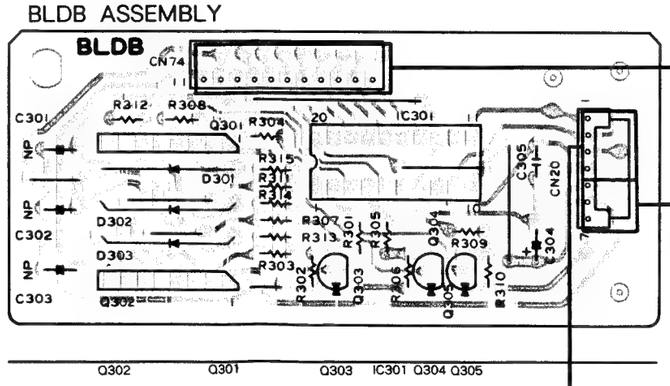
LFSB ASSEMBLY



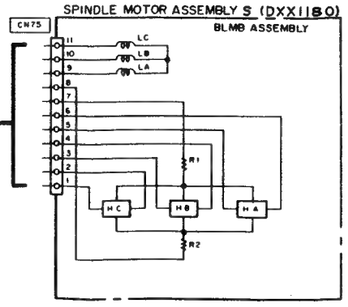
VCOB ASSEMBLY



BLDB ASSEMBLY



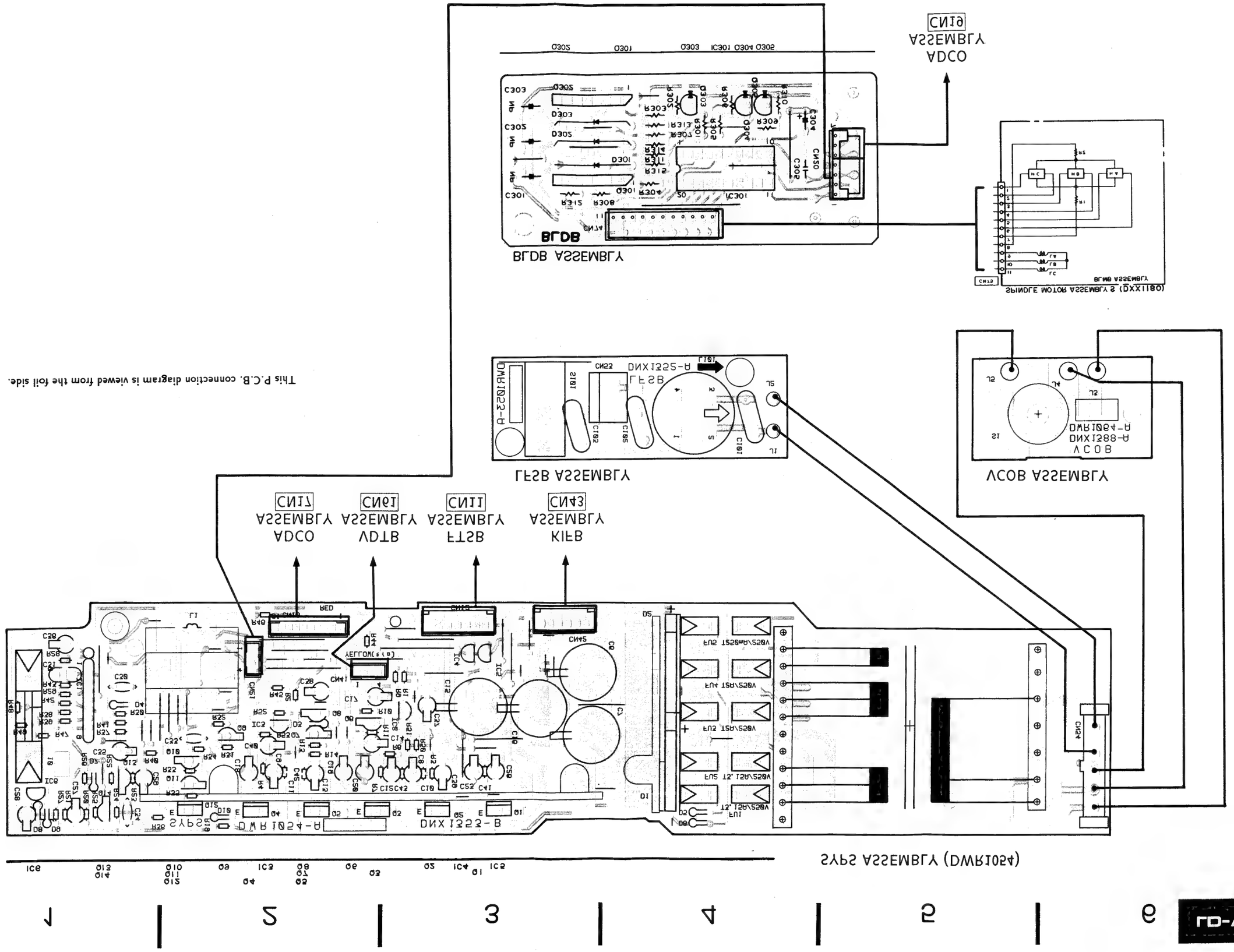
SPINDLE MOTOR ASSEMBLY S (DXX1180)



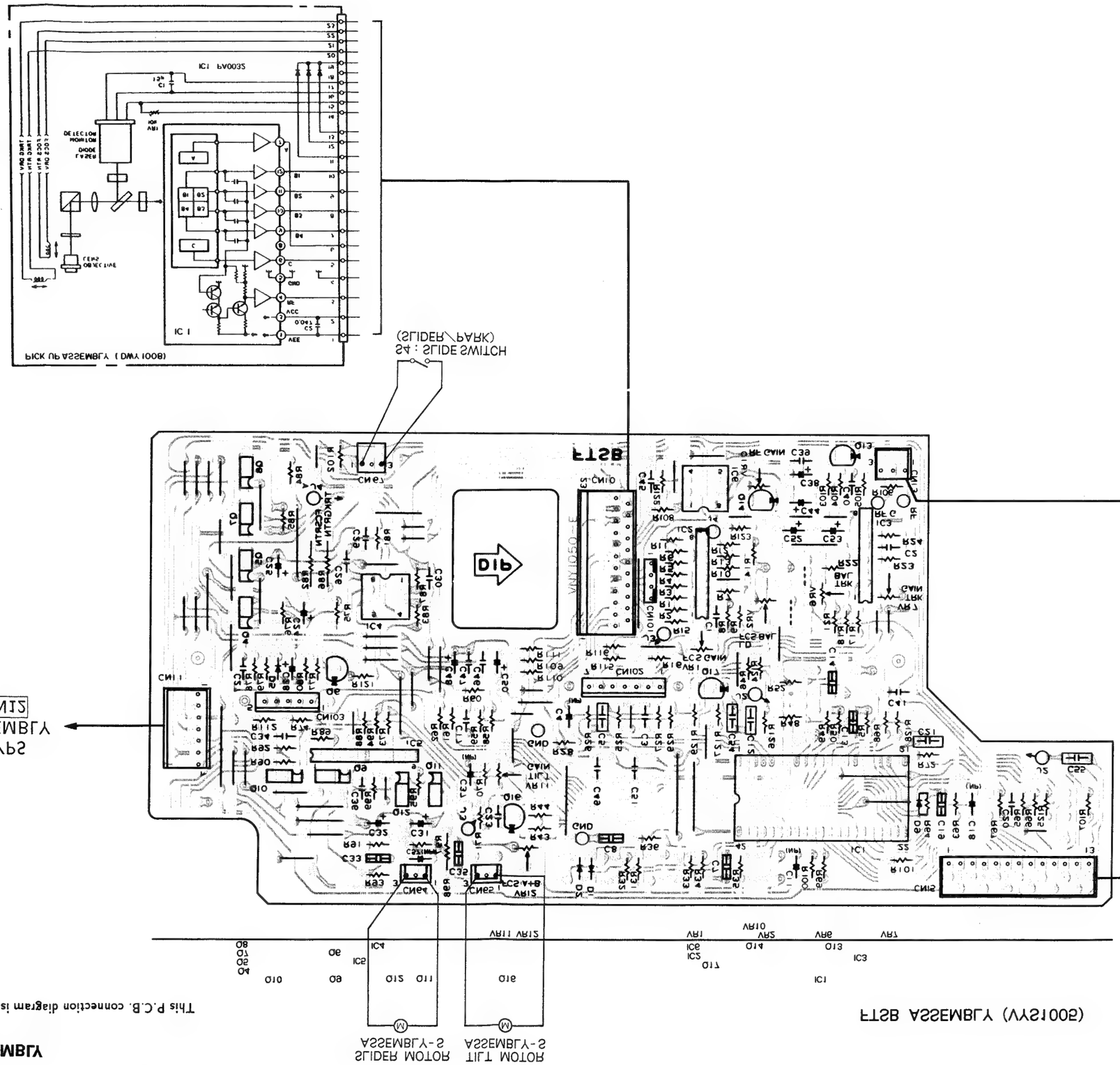
ADCO ASSEMBLY CN19

P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
D S G		FET			Mylar capacitor
		Diode			Styrol capacitor
					Electrolytic capacitor (Non polarized)
					Electrolytic capacitor (Noiseless)
		Zenner diode			Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Tact switch			Resistor array
					Resistor
		Inductor			
		Coil			Resonator
		Transformer			Thermistor
		Filter			

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.



This P.C.B. connection diagram is viewed from the foil side.



FTSB ASSEMBLY (VVS1002)

This P.C.B. connection diagram is viewed from the foil side.

8.3 PICK-UP AND FTSB ASSEMBLY

6.3 PICK-UP AND FTSB ASSEMBLY

FTSB ASSEMBLY (VYS1005)

SLIDER MOTOR ASSEMBLY-S

TILT MOTOR ASSEMBLY-S

SYPS ASSEMBLY CN12

ADCO ASSEMBLY CN16

ADCO ASSEMBLY CN14

S4 : SLIDE SWITCH (SLIDER/PARK)

PICK UP ASSEMBLY (DWY1008)

IC1 PA0032

: FOCS SERVO Signal Line
: SPDL SERVO Signal Line
: TILT SERVO Signal Line
: RF Signal Line
▼ : TEST POINT

◉FTSB ASSEMBLY (VYS1005)

PICK UP ASSEMBLY (DWY1008)

IC1 PA0032

IC1 : FTS SERVO IC

IC4 (1/2),Q7,8 : TRKG DRIVE

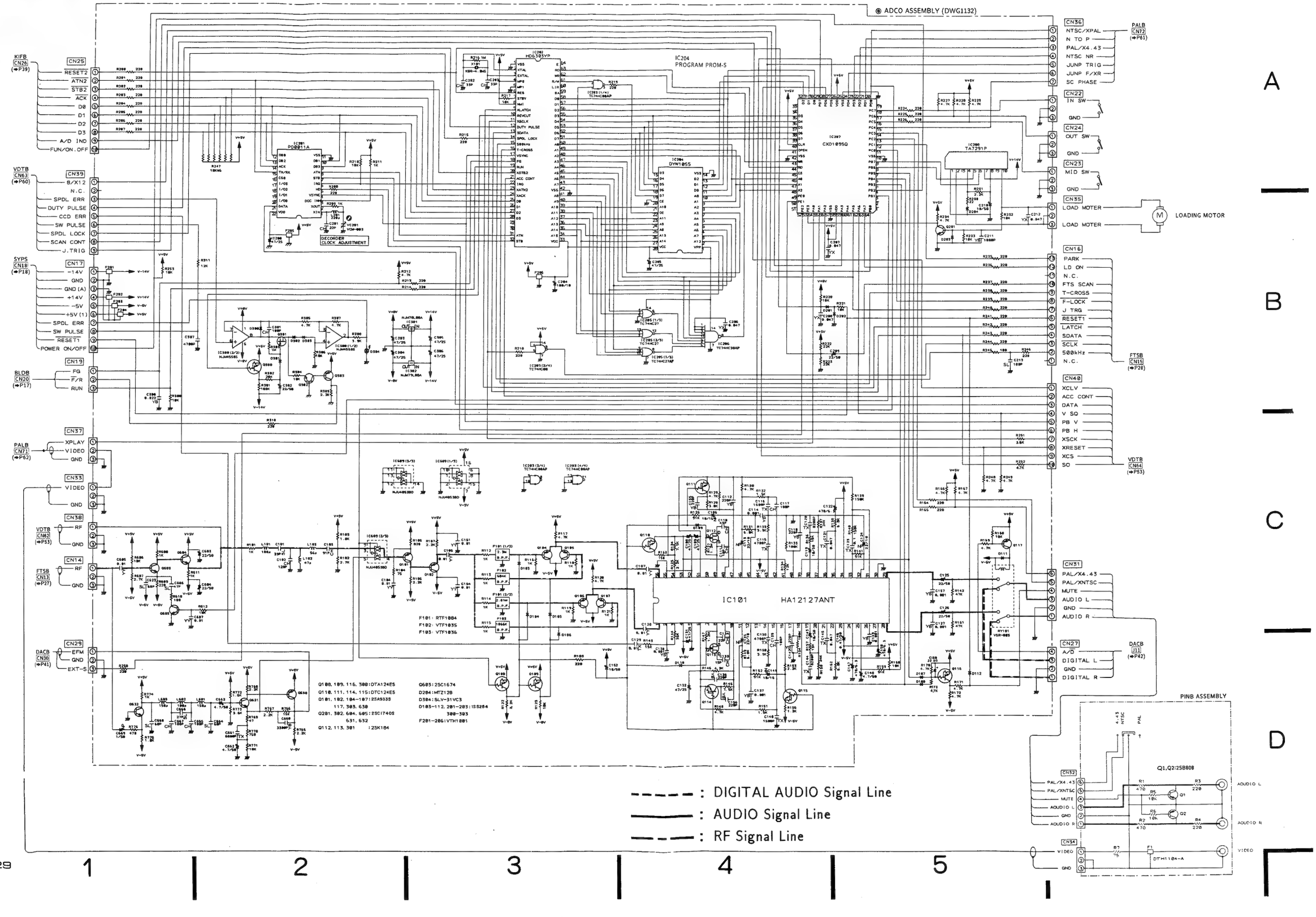
IC4 (2/2),Q4,5 : FOCS DRIVE

IC5 (1/2),Q9,10 : SLDR MOTOR DRIVE

IC5 (2/2),Q11,12 : TILT MOTOR DRIVE

IC1	HA11529NT	VR1,2,6,7,11	: VRT86VS472
IC2,3	BA15218N	VR10	: VRT86VS222
IC4	NJM4556DE	VR12	: VRT86VS103
IC5	NJM4556S		
IC6	IR3C02A		
Q4,7,9	2SD1762		
Q5,8,10	2SB1185		
Q6,17	2SK184		
Q11	2SD1859X		
Q12	2SB1238X		
Q13,14	2SC1740S		
Q16	2SA933S		
D1,2,5,9	1SS254		

6.4 ADCO AND PINB ASSEMBLY



S2 : SLIDE SWITCH (IN)
S5 : SLIDE SWITCH (OUT)
S3 : SLIDE SWITCH (MID)

ADCO ASSEMBLY (DWG1132)

LOADING MOTOR

DWG1132-A

ADCO

DACB ASSEMBLY J11

DACB ASSEMBLY CN30

VDTB ASSEMBLY CN64

VDTB ASSEMBLY CN63

SYPS ASSEMBLY CN18

KIFB ASSEMBLY CN26

BLDB ASSEMBLY CN20

FTSB ASSEMBLY CN13

PINB ASSEMBLY

PINB

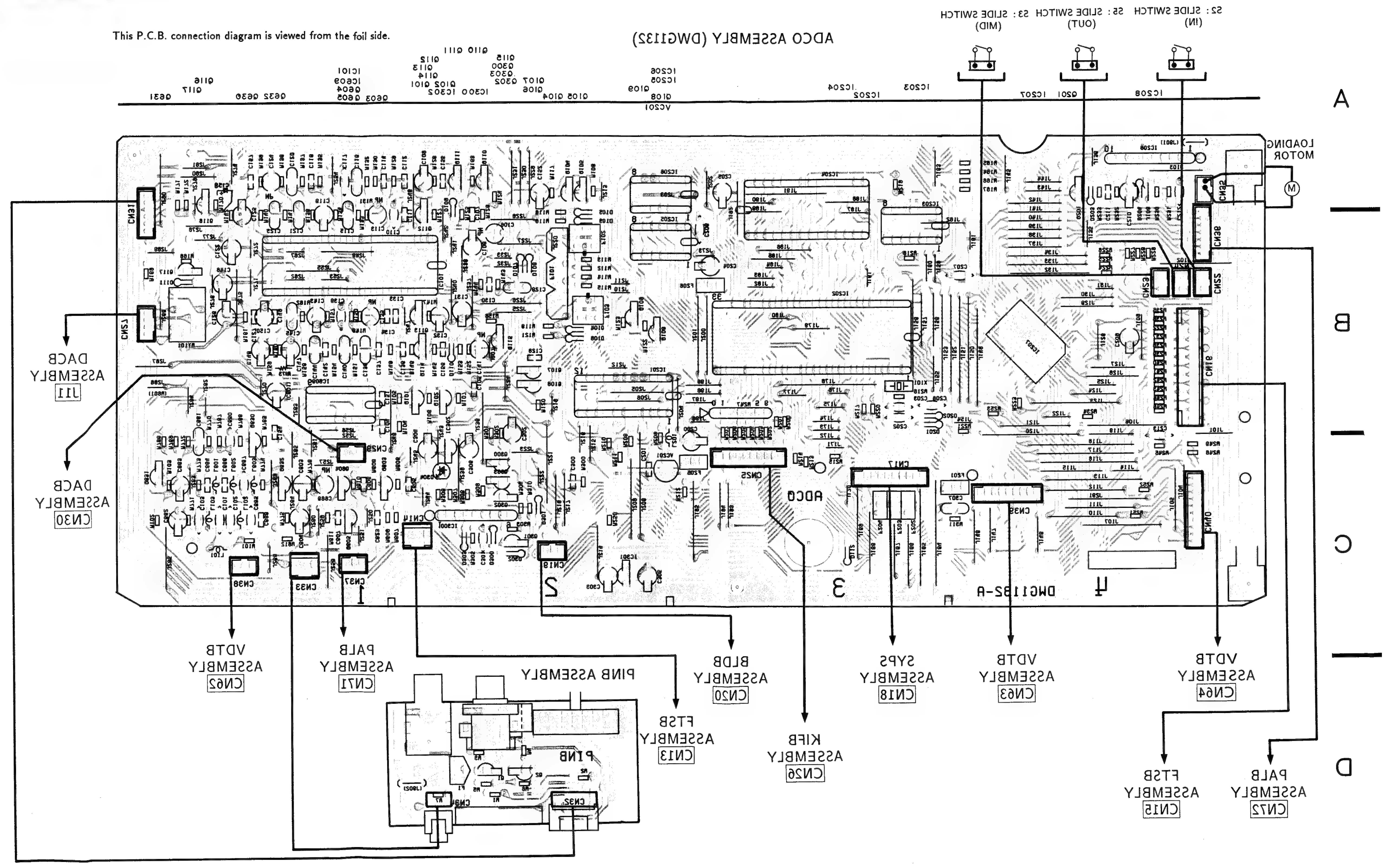
PALB ASSEMBLY CN71

VDTB ASSEMBLY CN62

PALB ASSEMBLY CN72

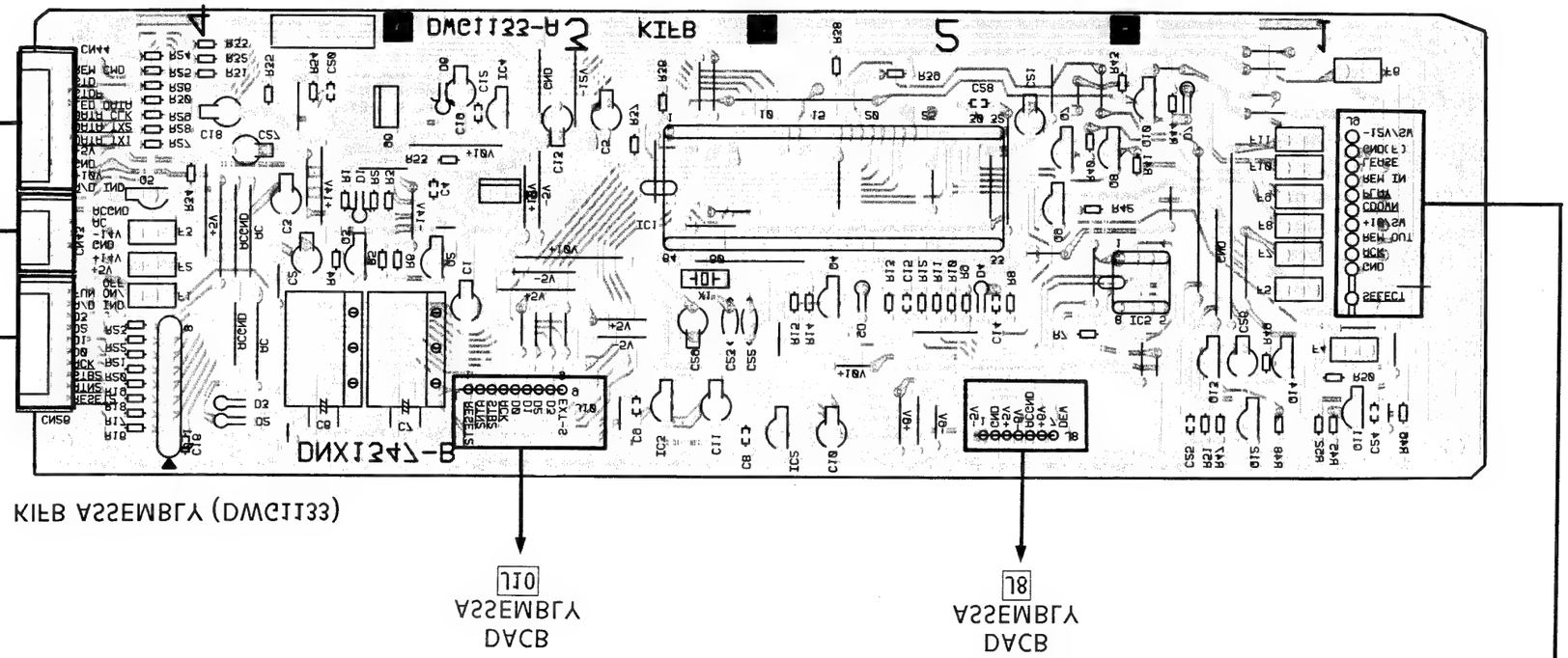
FTSB ASSEMBLY CN15

This P.C.B. connection diagram is viewed from the foil side.

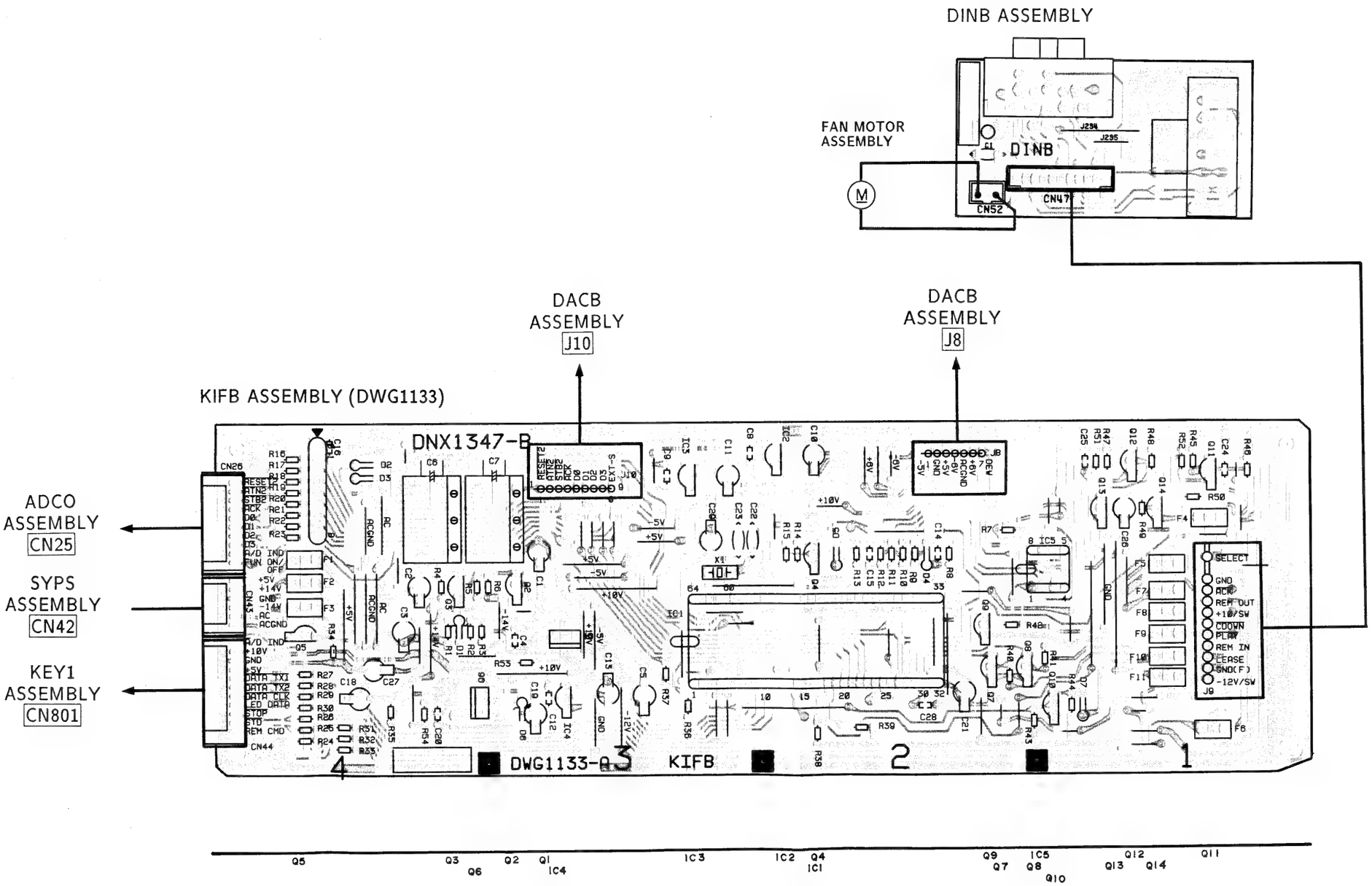


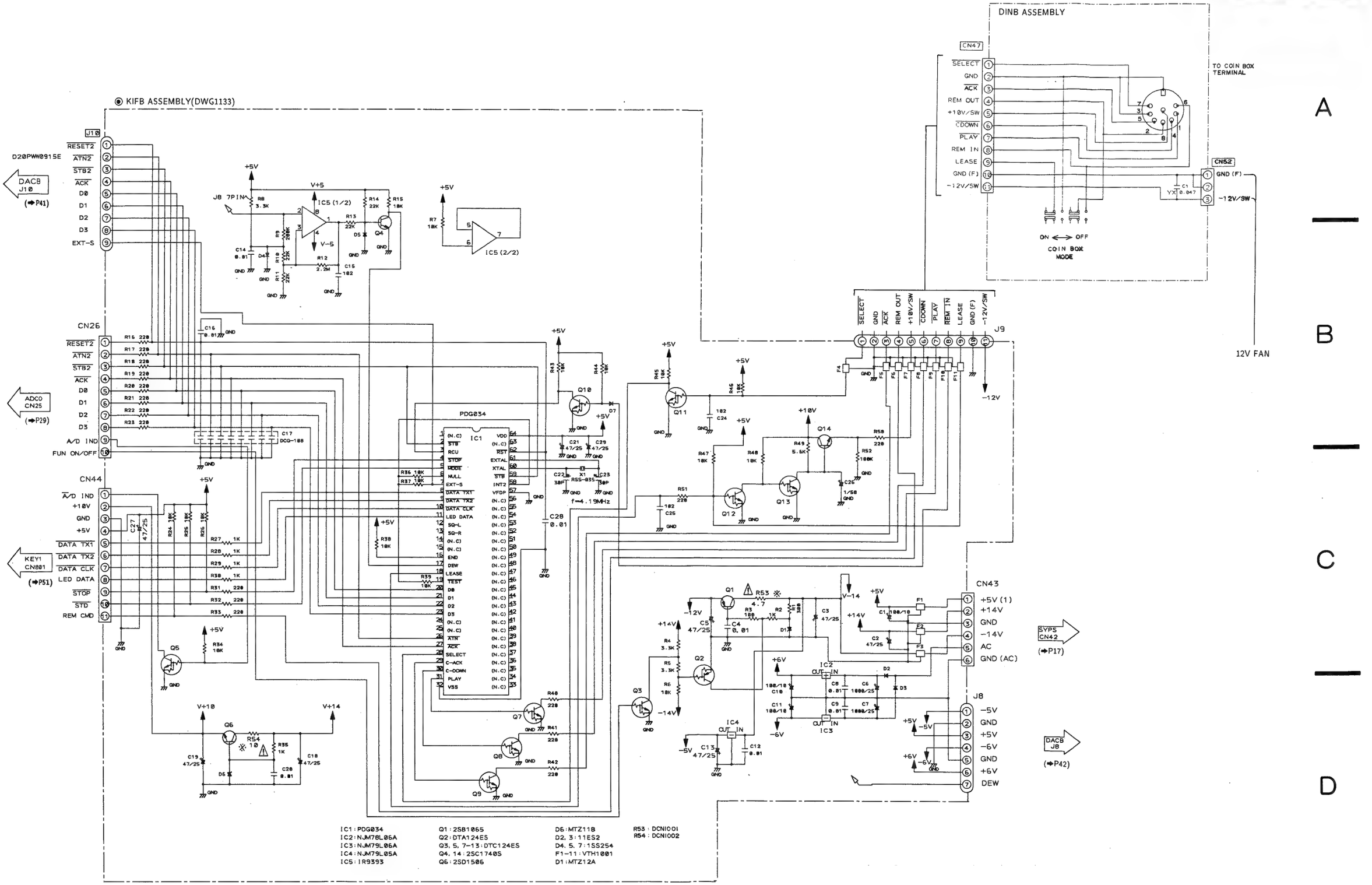
8.2 KIEB AND DINB ASSEMBLY

This P.C.B. connection diagram is viewed from the foil side.

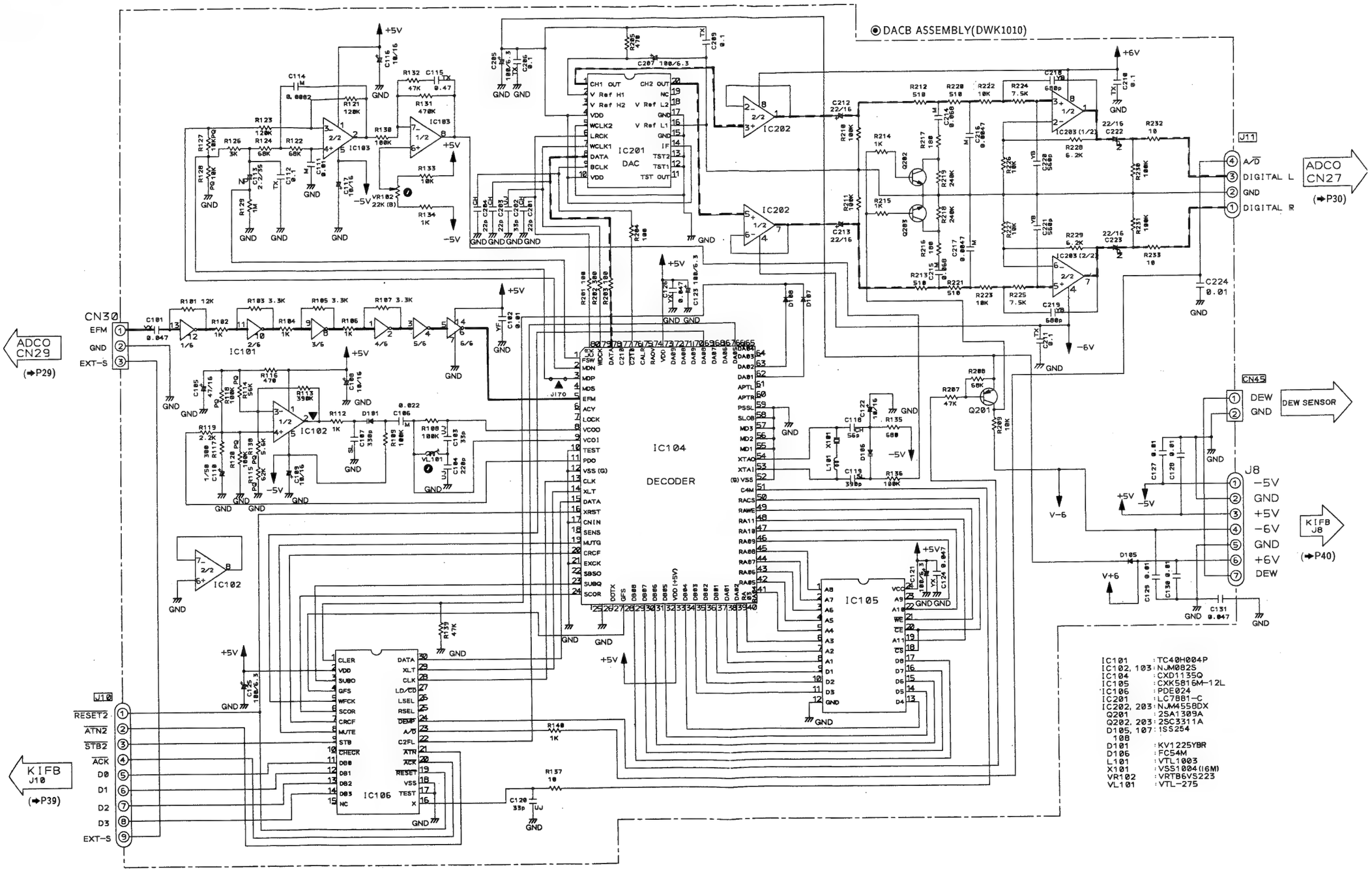


6.5 KIFB AND DINB ASSEMBLY



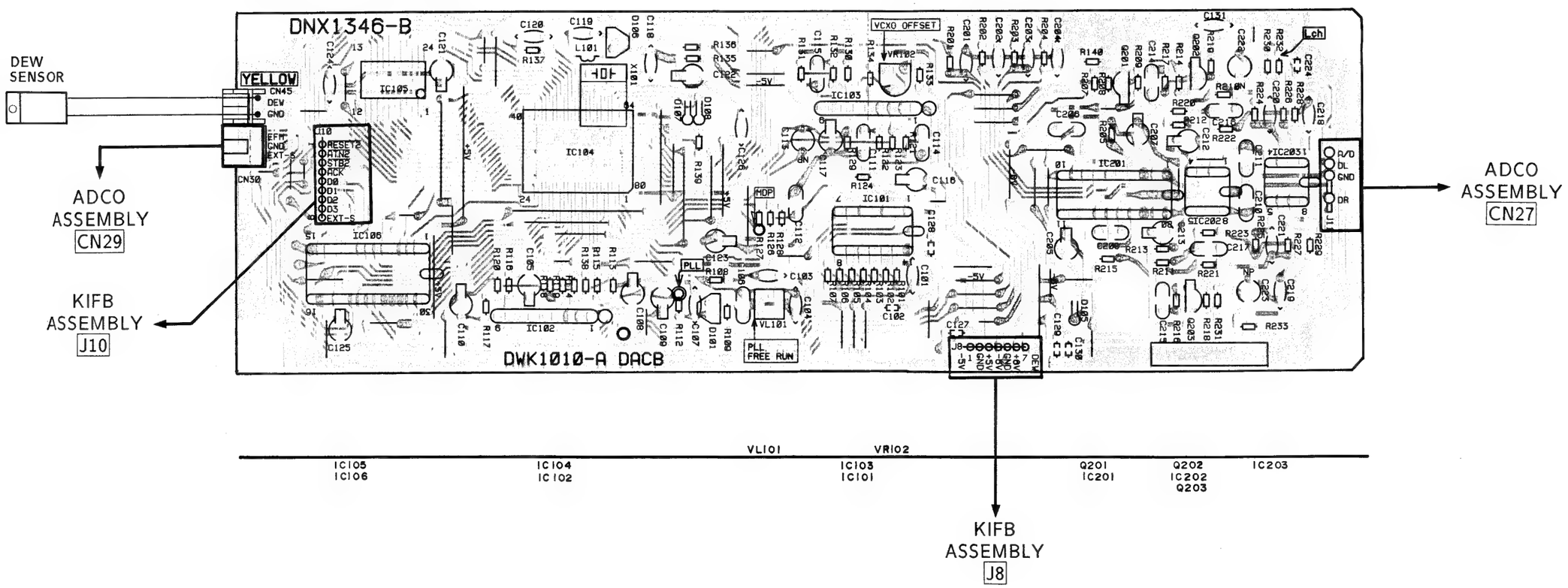

KIFB ASSEMBLY(DWG1133)
DINB ASSEMBLY
CN47
SELECT
GND
ACK
REM OUT
+10V/SW
CDOWN
PLAY
REM IN
LEASE
GND (F)
-12V/SW
TO COIN BOX TERMINAL
CN52
ON ⟷ OFF
COIN BOX MODE
12V FAN
J10
RESET2
ATN2
STB2
ACK
D0
D1
D2
D3
EXT-S
D20PWW0915E
DACB J10 (➡P41)
J8 7PIN
IC5 (1/2)
IC5 (2/2)
V+5
V-5
CN26
ADC0 CN25 (➡P29)
A/D IND
FUN ON/OFF
CN44
KEY1 CN801 (➡P51)
DATA TX1
DATA TX2
DATA CLK
LED DATA
STOP
STD
REM CMD
PDG034
IC1
J9
-12V
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
IC2
IC3
IC4
CN43
+5V (1)
+14V
GND
-14V
AC
GND (AC)
SVPS CN42 (➡P17)
J8
-5V
GND
+5V
-6V
GND
+6V
DEW
DACB J8 (➡P42)
IC1 : PDG034
IC2 : NJM78L06A
IC3 : NJM79L06A
IC4 : NJM79L05A
IC5 : IR9393
Q1 : 2SB1065
Q2 : DTA124ES
Q3, 5, 7~13 : DTC124ES
Q4, 14 : 2SC1740S
Q6 : 2SD1586
D6 : MTZ11B
D2, 3 : 1ES2
D4, 5, 7 : 1SS254
F1~11 : VTH1001
D1 : MTZ12A
R53 : DCN1001
R54 : DCN1002

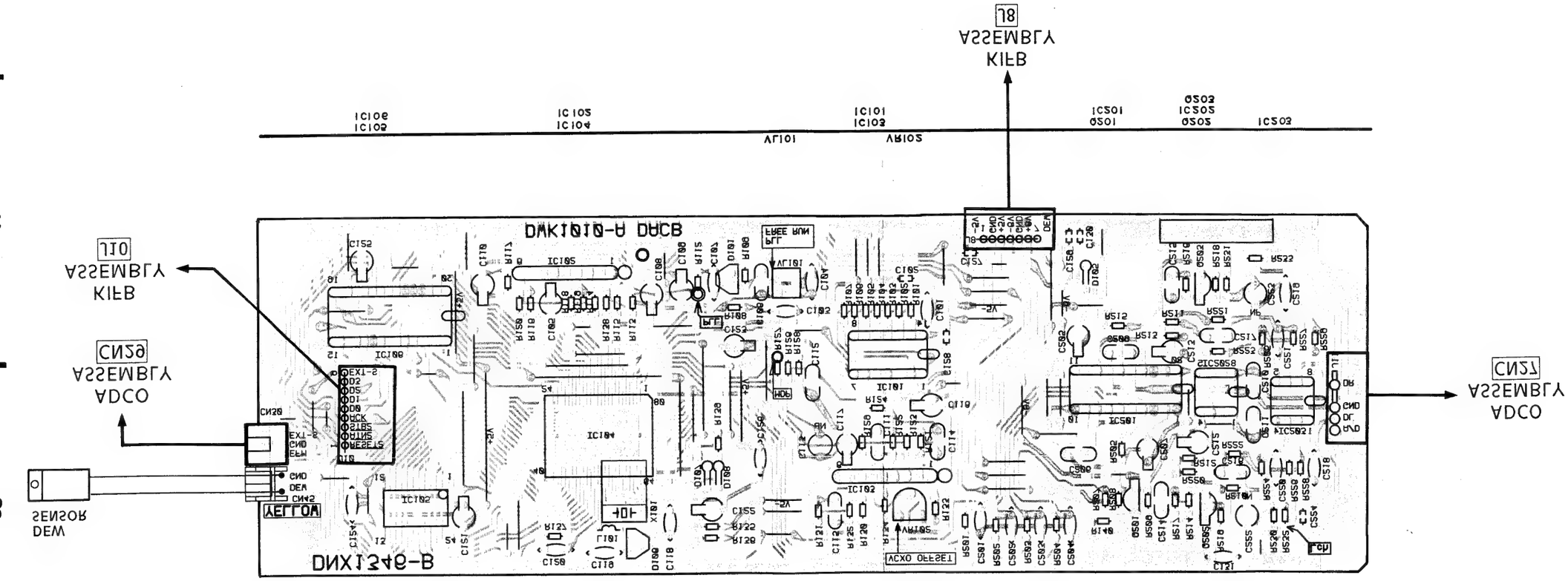
6.6 DACB ASSEMBLY



DACB ASSEMBLY

DACB ASSEMBLY (DWK1010)

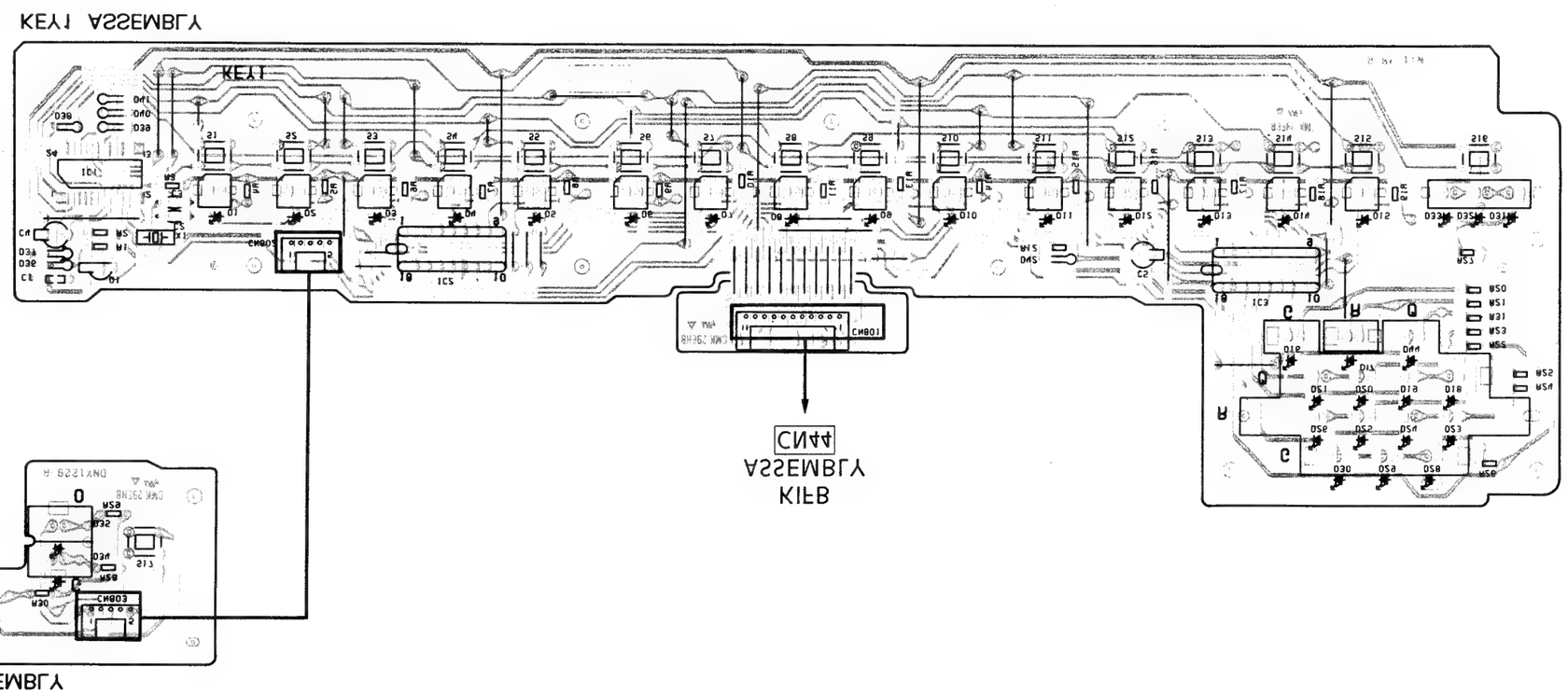




DACB ASSEMBLY

This P.C.B. connection diagram is viewed from the foil side.

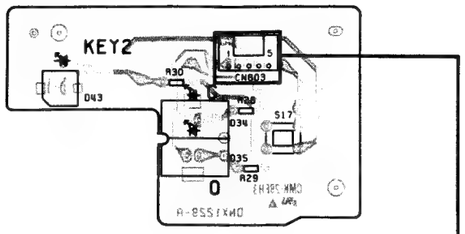
8.7 KEY AND KEYS ASSEMBLY



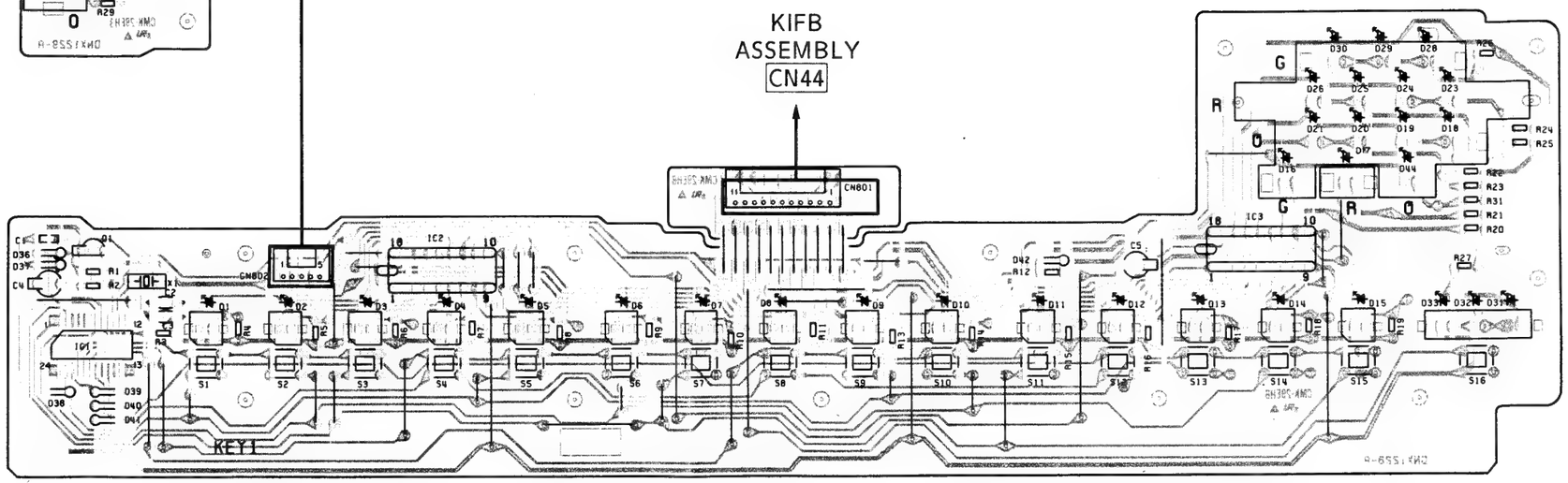
This P.C.B. connection diagram is viewed from the foil side.

6.7 KEY1 AND KEY2 ASSEMBLY

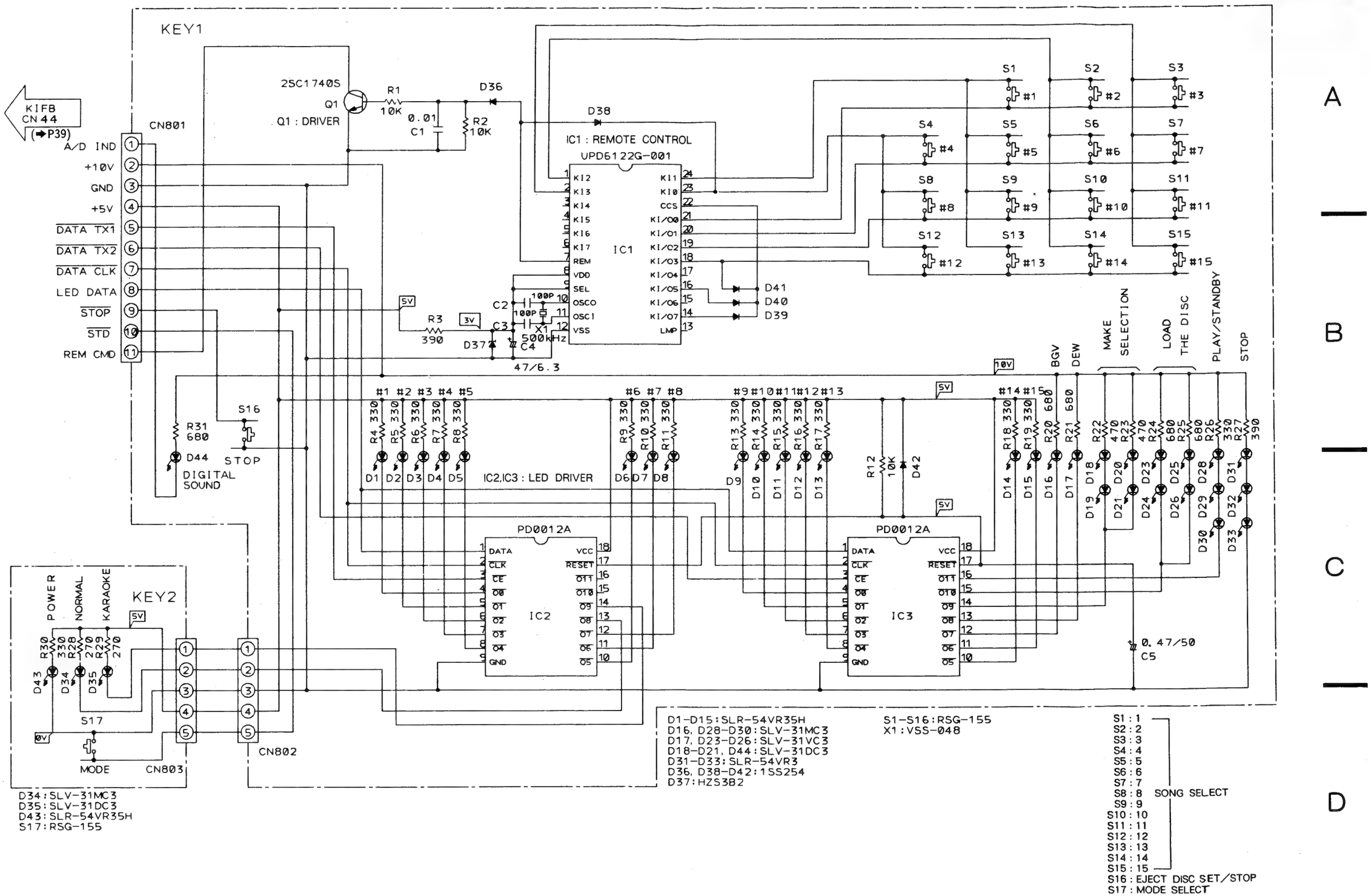
KEY2 ASSEMBLY



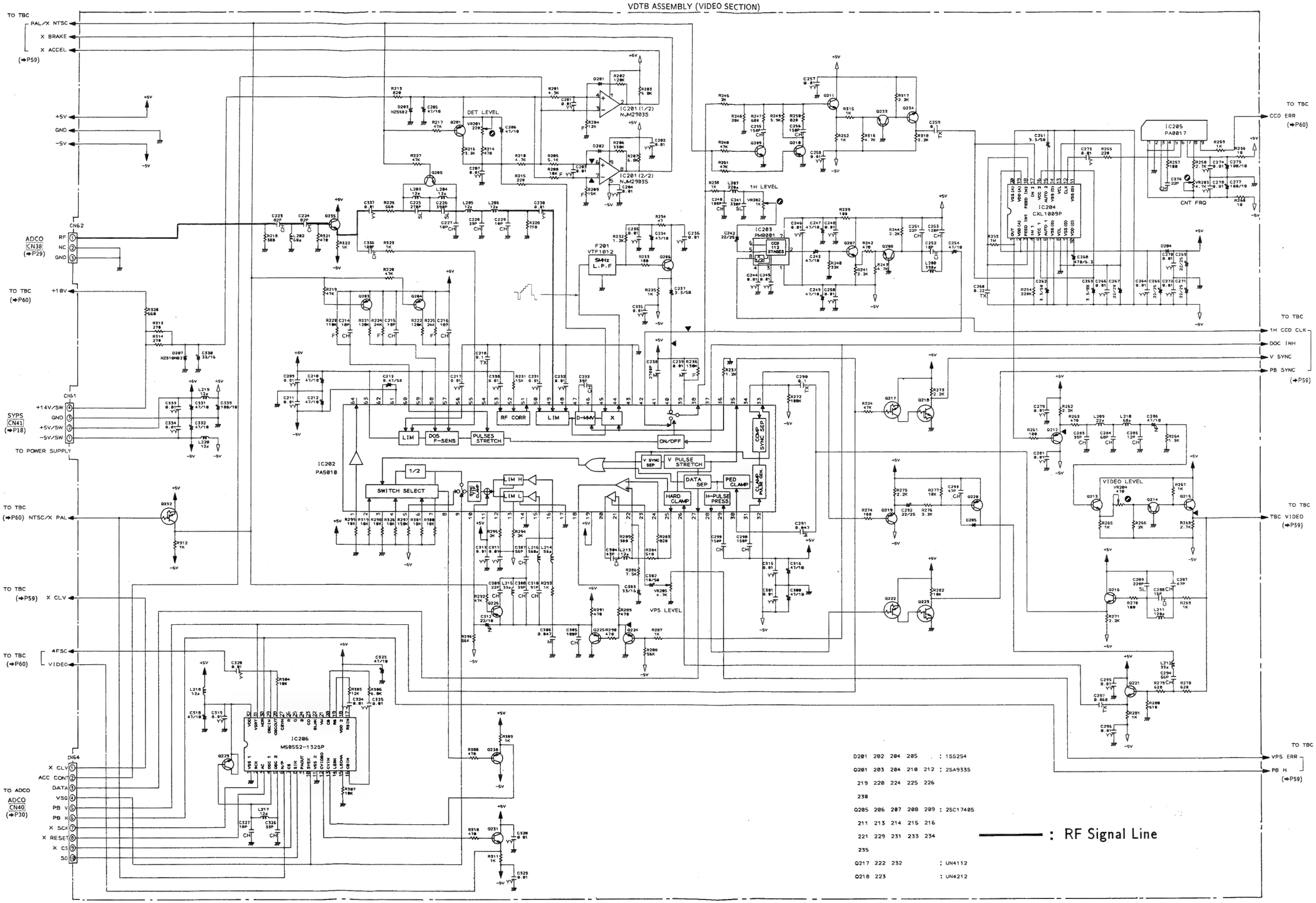
KIFB ASSEMBLY CN44



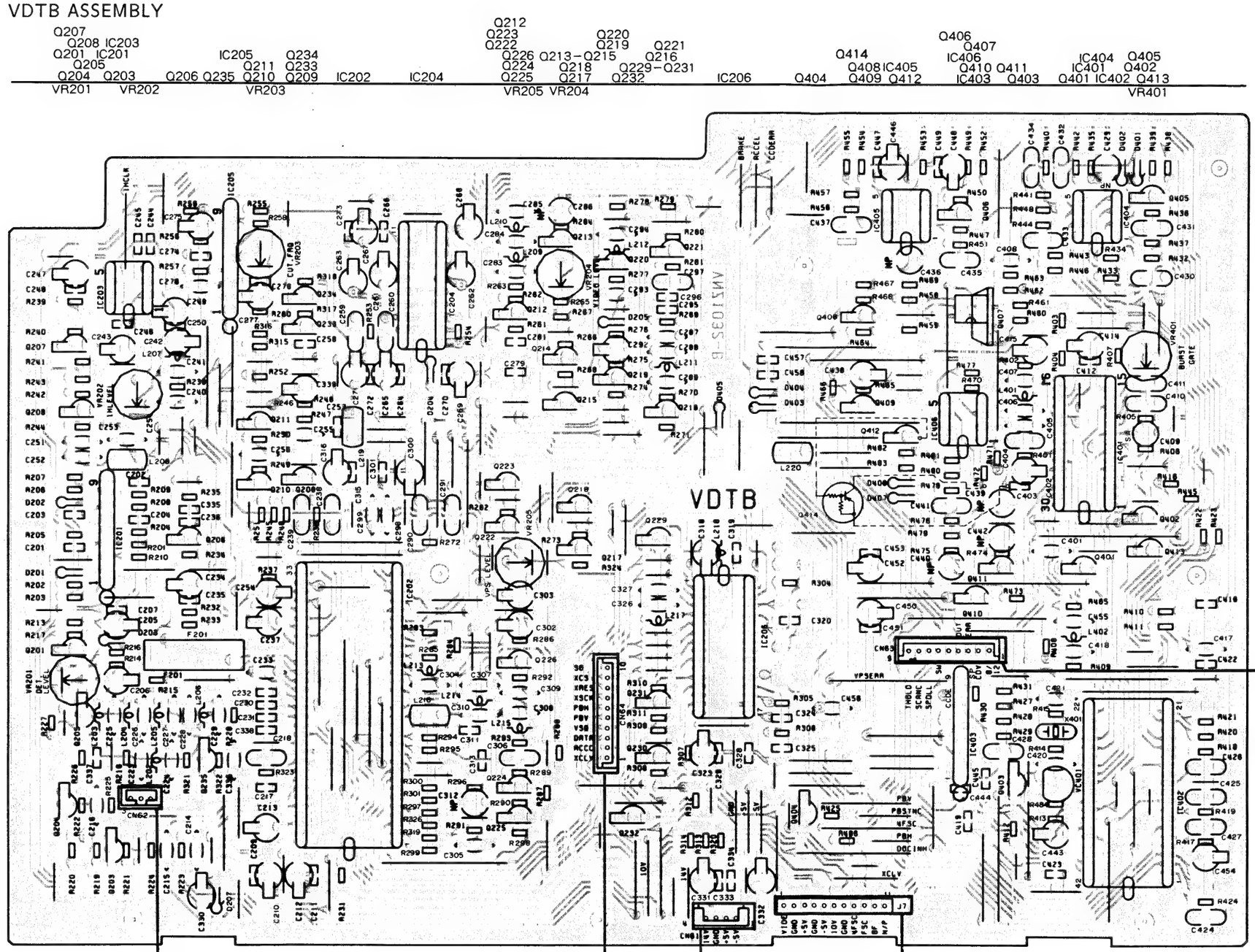
KEY1 ASSEMBLY

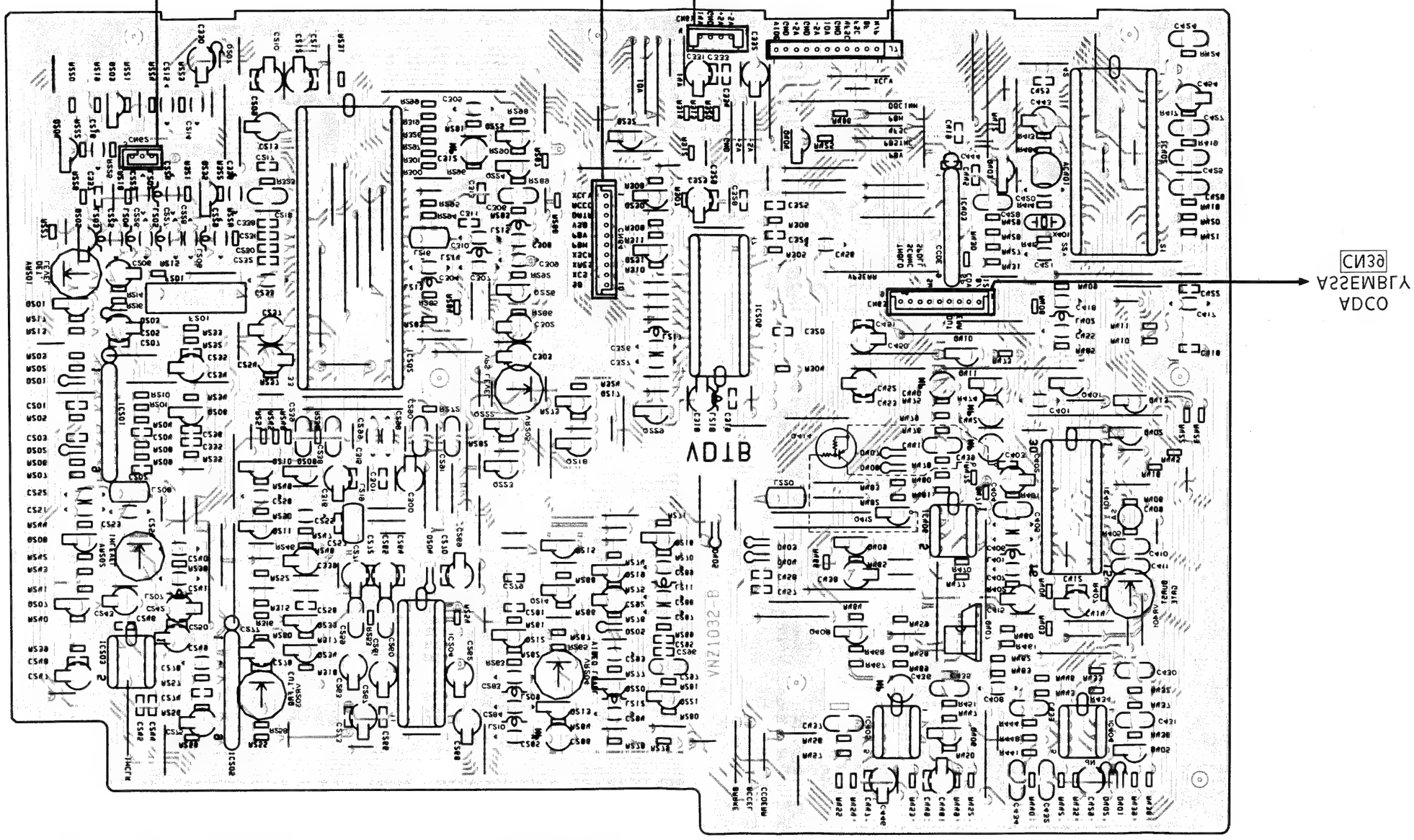

KEY1
KIFB CN44 (➡P39)
CN801
A/D IND
+10V
GND
+5V
DATA TX1
DATA TX2
DATA CLK
LED DATA
STOP
STD
REM CMD
2SC1740S
Q1
Q1 : DRIVER
R1 10K
0.01 C1
R2 10K
D36
D38
IC1 : REMOTE CONTROL
UPD6122G-001
IC1
KI2 KI3 KI4 KI5 KI6 KI7 REM VDD SEL OSCO OSCI VSS
KI1 KI0 CCS KI/O0 KI/O1 KI/O2 KI/O3 KI/O4 KI/O5 KI/O6 KI/O7 LMP
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11 #12 #13 #14 #15
D41 D40 D39
C2 100P
C3 100P
X1 500kHz
C4 47/6.3
R3 390
D37
5V
3V
10V
BGV
DEW
MAKE SELECTION
LOAD THE DISC
PLAY/STANDBY
STOP
R4 330 R5 330 R6 330 R7 330 R8 330
R9 330 R10 330 R11 330
R13 330 R14 330 R15 330 R16 330 R17 330
R18 330 R19 330
R20 680 R21 680
R22 470 R23 470 R24 680 R25 680 R26 680 R27 330 R31 390
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D23 D24 D26 D29 D30 D32 D33
IC2,IC3 : LED DRIVER
R12 10K
D42
S16
R31 680
D44
STOP
DIGITAL SOUND
PD0012A
IC2
IC3
DATA CLK CE O0 O1 O2 O3 O4 GND
VCC RESET O11 O10 O9 O8 O7 O6 O5
0.47/50 C5
KEY2
POWER NORMAL KARAOKE
R30 330 R28 270 R29 270
D43 D34 D35
S17
MODE
CN803
CN802
D34 : SLV-31MC3
D35 : SLV-31DC3
D43 : SLR-54VR35H
S17 : RSG-155
D1-D15 : SLR-54VR35H
D16, D28-D30 : SLV-31MC3
D17, D23-D26 : SLV-31VC3
D18-D21, D44 : SLV-31DC3
D31-D33 : SLR-54VR3
D36, D38-D42 : 1SS254
D37 : HZS3B2
S1-S16 : RSG-155
X1 : VSS-048
S1 : 1
S2 : 2
S3 : 3
S4 : 4
S5 : 5
S6 : 6
S7 : 7
S8 : 8
S9 : 9
S10 : 10
S11 : 11
S12 : 12
S13 : 13
S14 : 14
S15 : 15
SONG SELECT
S16 : EJECT DISC SET/STOP
S17 : MODE SELECT

6.8 VDTB ASSEMBLY (VIDEO SECTION)



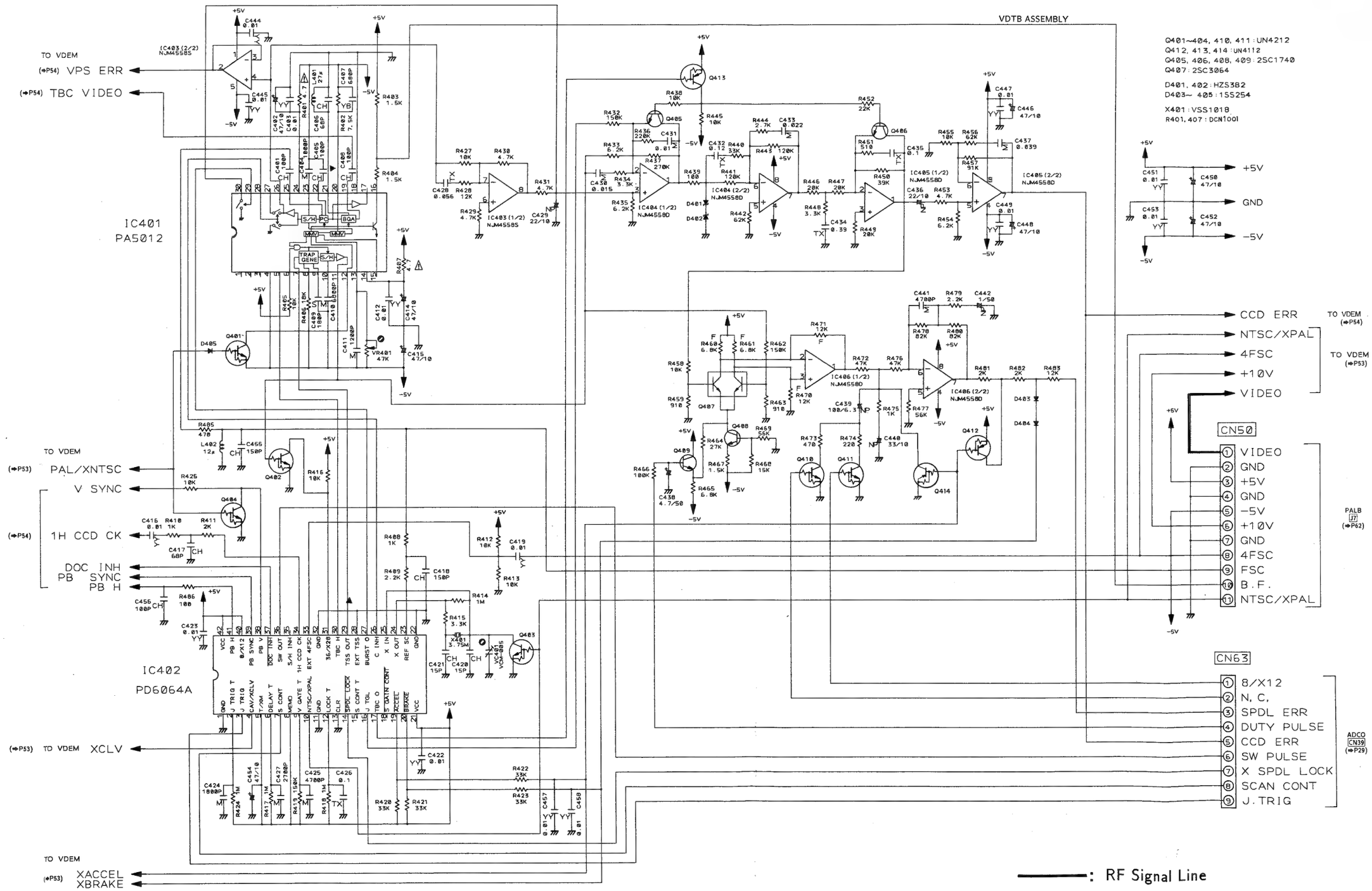
VDTB ASSEMBLY



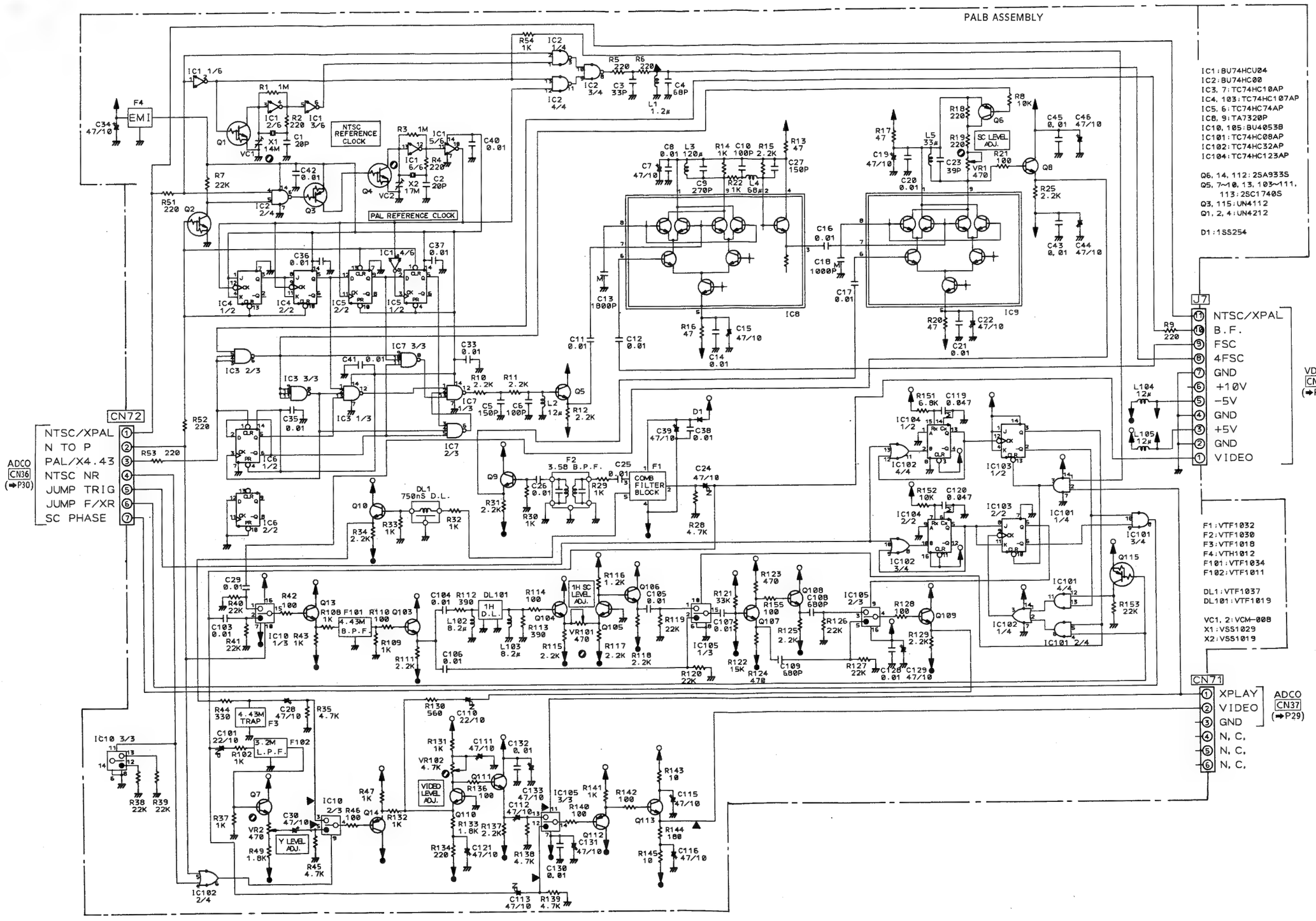


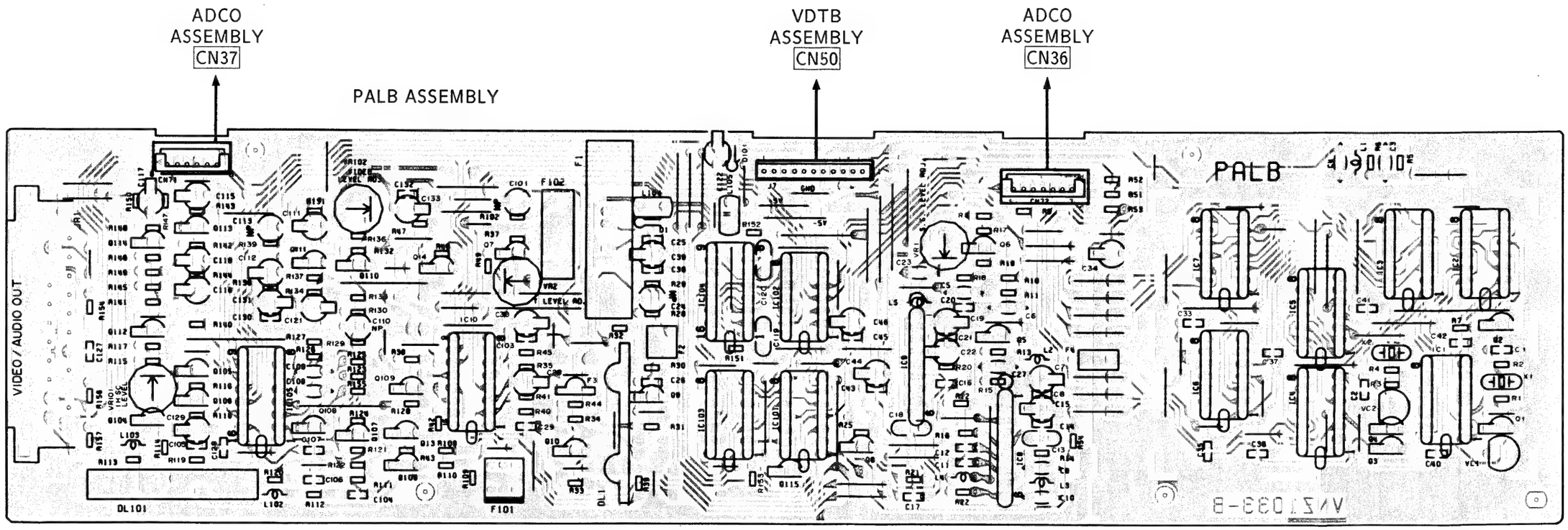
This P.C.B. connection diagram is viewed from the foil side.

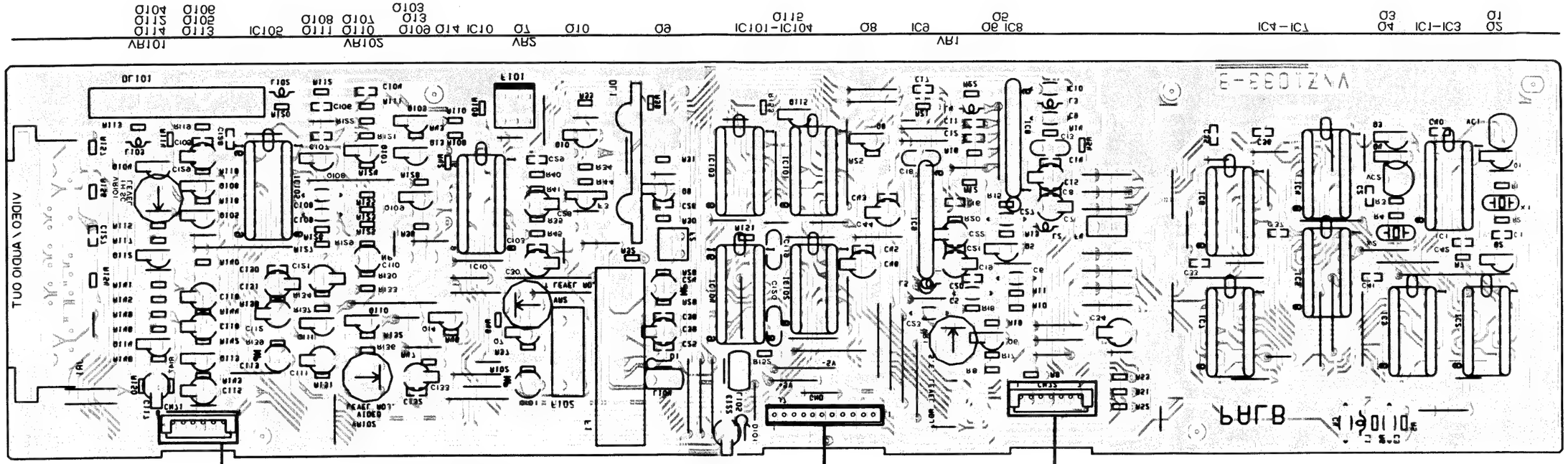
6.9 VDTB ASSEMBLY (TBC SECTION)



6.10 PALB ASSEMBLY




ADCO ASSEMBLY CN37
PALB ASSEMBLY
VDTB ASSEMBLY CN50
ADCO ASSEMBLY CN36
PALB
VIDEO / AUDIO OUT
DL101
F101
VR101
VR102
VR2
VR1
Q114 Q113
Q112 Q105
Q104 Q106
IC105
Q111 Q110
Q108 Q107
Q109 Q14 IC10
Q13
Q103
Q7
Q10
Q9
IC101–IC104
Q115
Q8
IC9
Q6 IC8
Q5
IC4–IC7
Q4
Q3
IC1–IC3
Q2
Q1



This P.C.B. connection diagram is viewed from the foil side.

7. ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

Miscellaneous Parts

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
◉	SYPS assembly	DWR1054
	BLDB assembly	
	BLMB assembly	
	VCOB assembly	
	LFSB assembly	
◉	FTSB assembly	VYS1005
◉	ADCO assembly	DWG1132
	PINB assembly	
◉	KIFB assembly	DWG1133
	DINB assembly	
◉	DACB assembly	DWK1010
	KEY1 assembly	
	KEY2 assembly	
	VDTB assembly	
	PALB assembly	

OTHERS

Mark	Symbol & Description	Part No.
	Pick-up assembly	DWY1008
	Dew sensor	DCX1003
⚠	Inlet assembly (2P)	DKX1001
⚠	Inlet (2P)	DKN1027
⚠	Power transformer	DTT1038
	DC fan	DXM1034
⚠	Fuse (FU5) (T250mA/250V)	REK-094
⚠	Fuse (FU3,FU4) (T2A/250V)	REK-103
⚠	Fuse (FU1,FU2) (T3.15A/250V)	REK-105
	Hour meter	VCX-006
	S4 Slide switch (SLIDER/PARK)	VSK1003
	Spindle motor assembly-S	DXX1180
	Tilt motor assembly-S	VXX1082
	Slider motor assembly-S	VXX1083
	S2 Slide switch (TABLE/IN)	VSK-010
	S3, S5 Slide switch (TABLE/OUT, MID)	VSK-012
	Loading motor assembly-S	DXX1185
	Program PROM-S IC204	DYW1074
	Voltage selector	VSB-001

◉ SYPS Assembly (DWR1054)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
⚠	IC6	ICP-N10
⚠	IC4, IC5	ICP-N15
	IC1	NJM4558S
⚠	IC2	NJM78L06A
⚠	IC3	NJM79L06A
	Q8	DTC124ES
	Q7, Q9, Q13	2SA933S
	Q4, Q5	2SB1257
	Q11	2SC1627
	Q10, Q14	2SC1740S
	Q12	2SD1267
	Q1 – Q3	2SD1796
	Q6	2SD1863
	D1, D2	D3SBA20
	D9	HZS8.2EB2
	D4	S2K20
	D3, D5 – D8, D10	1SS254

COIL

Mark	Symbol & Description	Part No.
	L1 Choke coil	VTT-070

CAPACITORS

Mark	Symbol & Description	Part No.
	C30	CCCSL331J50
	C34	CCCSL471J50
	C27	CEAS100M50
	C28	CEAS101M25
	C6, C7	CEAS222M25
	C29	CEAL100M16
	C35	CEAS3R3M50
	C8, C9, C12 – C14, C17 – C20, C23, C26, C37 – C40	CEAS330M25
	C36	CEAS470M50
	C33	CKCYB102K50

Mark	Symbol & Description		Part No.
	C10, C11, C41 – C43		CKPUYY103N16
	C31		CQMA183J50
	C16	(4700/10)	VCH1003
	C15	(6800/10)	VCH1040

RESISTORS

Mark	Symbol & Description		Part No.
⚠	R9	Fusible	DCN1002
	R44, R45		RD1/2PMF□□□J
	R38, R39, R41, R42		RN1/6PQ□□□□F
	R37, R40		RS1PMF□□□J
		Other resistors	RD1/6PM□□□J

BLDB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC301	TA8413P
	Q301	STA302A
	Q302	STA303A
	Q303 – Q305	2SA1048
	D301 – D303	S2V10-4001

CAPACITORS

Mark	Symbol & Description	Part No.
	C304	CEAS4R7M50
	C305	CKCYF103Z50
	C301 – C303 (33/50)	VCH1034

RESISTORS

Mark	Symbol & Description		Part No.
		All resistors	RD1/6PM□□□J

BLMB Assembly

No electrical parts are supplied for this assembly.

VCOB Assembly

No electrical parts are supplied for this assembly.

LFSB Assembly

SWITCH

Mark	Symbol & Description		Part No.
⚠	S101	Power switch	VSA-010

FILTER

Mark	Symbol & Description		Part No.
⚠	L101	Line filter	VTL-004

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C101 – C103	VCG-048

OTHER

Mark	Symbol & Description	Part No.
⚠	CN53	SD-5277-02A

◉ FTSB Assembly (VYS1005)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC2, IC3	BA15218N
	IC1	HA11529NT
	IC6	IR3C02A
	IC4	NJM4556DE
	IC5	NJM4556S
	Q16	2SA933S
	Q5, Q8, Q10	2SB1185
	Q12	2SB1238X
	Q13, Q14	2SC1740S
	Q4, Q7, Q9	2SD1762
	Q11	2SD1859X
	Q6, Q17	2SK184
	D1, D2, D5, D9	1SS254

CAPACITORS

Mark	Symbol & Description	Part No.
	C2	CCPUSL680J50
	C38	CEAL010M50
	C52, C53	CEAL220M6R3
	C24, C25	CEAL330M25
	C37	CEJANPR47M50
	C3, C57	CEJANP010M50
	C4, C18	CEJANP100M10
	C11	CEJANP220M10
	C28	CEJA010M50
	C48, C50	CEJA220M6R3
	C31, C32	CEJA330M25
	C54	CFTXA103J50
	C5, C17, C19, C33, C35	CFTXA104J50
	C21	CFTXA223J50
	C7	CFTXA333J50
	C8, C14	CFTXA473J50
	C13	CFTXA683J50
	C26	CKCYF103Z50
	C30	CKPUYB101K50
	C20, C23, C27, C34	CKPUYB102K50

Mark	Symbol & Description	Part No.
	C1, C29	CKPUYB331K50
	C36, C39, C40, C41, C45 — C47, C49, C51	CKPUYF103Z25
	C12	CQMA272J50
	C55	CQMA472J50
	C44	CSZA220M10

RESISTORS

Mark	Symbol & Description	Part No.
	R82, R86, R93, R98	RD1/2PMF□□□J
	R128	RN1/6PQ5602F
	VR12 Semi-fixed (10k)	VRTB6VS103
	VR10 Semi-fixed (2.2k)	VRTB6VS222
	VR1, VR2, VR6, VR7, VR11 Semi-fixed (4.7k)	VRTB6VS472
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN10 Side connector (23P)	VKN1013

◉ ADCO Assembly (DWG1132)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC207	CXD1095Q
	IC101	HA12127ANT
	IC202	HD6303YP
	IC300	NJM4558S
	IC301	NJM78L08A
	IC302	NJM79L08A
	IC609	NJU4053BD
	IC201	PD0011A
	IC208	TA7291P
	IC203	TC74HC00AP
	IC205	TC74HC27AP
	IC206	TC74HC30AP
	Q108, Q109, Q116, Q300	DTA124ES
	Q110, Q111, Q114, Q115	DTC124ES
	Q101, Q102, Q104 — Q107, Q117, Q303, Q630	2SA933S
	Q603	2SC1674
	Q201, Q302, Q604, Q605, Q631, Q632	2SC1740S
	Q112, Q113, Q301	2SK184
	D204	MTZ12B
	D304	SLV-31VC3
	D103 — D112, D201 — D203, D300 — D303	1SS254

COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L601, L603 Axial inductor	LAU151K
	L602 Axial inductor	LAU181J
	L201 Axial inducotr	LAU221J
	L102 Axial inductor	LAU470J
	L103 Axial inductor	LAU560J
	L101 Radial inductor	LRA101J
	F101 2.30MHz, 2.81MHz BPF	RTF1084
	F102 684KHz BPF	VTF1035
	F103 1066KHz BPF	VTF1036
	F201 — F206 Filter	VTH1001

CAPACITORS

Mark	Symbol & Description	Part No.
	C117, C139, C301, C665, C667	CCCCH101J50
	C102	CCCCH121J50
	C202, C203	CCCCH330J50
	C110	CCCCH430J50
	C103	CCCCH910J50
	C213	CCCSL181J50
	C101	CCCSL390J50
	C134, C201	CCDCH220J50
	C133	CCPUCH150J50
	C111	CCPUCH180J50
	C666	CCPUSL270J50
	C606	CCPUSL470J50
	C623, C664, C668	CCPUSL680J50
	C669	CEANP010M50
	C106, C141	CEANP100M16
	C113, C124, C135	CEANP220M10
	C146	CEASR47M50
	C119, C143, C152, C210	CEAS100M50
	C204	CEAS101M10
	C125,C126,C158,C209,C302,C603, C604	CEAS220M50
	C148, C662, C663	CEAS4R7M50
	C108, C109, C131, C132, C200, C205, C303 — C306	CEAS470M25
	C122, C147, C150	CEAS471M6R3
	C129	CFTXA103J50
	C123	CFTXA104J50
	C116, C140 .	CFTXA152J50
	C115, C138, C307	CFTXA472J50
	C121, C145	CFTXA473J50
	C661	CFTXA682J50
	C120, C144	CFTXA822J50
	C206 — C208, C212	CGCYX473M25
	C660	CKCYB332K50
	C114, C127, C130, C137, C149, C157, C211	CKPUYB102K50
	C112, C118, C136, C142, C155, C156	CKPUYB221K50
	C300	CKPUYF223Z25
	C104, C105, C107, C128, C151, C154, C605, C607	CKPUYY103N16

Mark	Symbol & Description		Part No.
	VC201	Ceramic trimmer	VCM-003

RESISTORS

Mark	Symbol & Description		Part No.
	R247	Resistor array (10k x 6)	RA6S103J
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
	X101	Ceramic resonator	KBR-4.0MS
		IC socket (28P)	VKH1001
	RY101	Relay	VSR-005

PINB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q1, Q2	2SB808

SWITCH

Mark	Symbol & Description		Part No.
		Slide switch	DSH-107

FILTER

Mark	Symbol & Description		Part No.
	F1	Filter	DTH1104

RESISTORS

Mark	Symbol & Description		Part No.
		All resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
		Pin jack (2P)	VKB-006
		Pin jack (VIDEO)	VKB-014

◉ KIFB Assembly (DWG1133)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC5	IR9393
	IC2	NJM78L06A
	IC4	NJM79L05A
	IC3	NJM79L06A
	IC1	PDG034
	Q2	DTA124ES
	Q3, Q5, Q7 – Q13	DTC124ES
	Q1	2SB1065
	Q4, Q14	2SC1740S
	Q6	2SD1506
	D6	MTZ11B
	D1	MTZ12A
	D4, D5, D7	1SS254
	D2, D3	11ES2

FILTERS

Mark	Symbol & Description	Part No.
	F1 – F11	VTH1001

CAPACITORS

Mark	Symbol & Description		Part No.
	C22, C23		CCCSL300J50
	C26		CEAS010M50
	C1, C10, C11		CEAS101M10
	C6, C7		CEAS102M25
	C2, C3, C5, C13, C18, C19, C21, C27, C29		CEAS470M25
	C15, C24, C25		CKPUYB102K50
	C4, C8, C9, C12, C14, C16, C20 C28		CKPUYF103Z25
	C17	Capacitor array	DCG-108

RESISTORS

Mark	Symbol & Description		Part No.
⚠	R53	Fusible	DCN1001
⚠	R54	Fusible	DCN1002
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
	X1	Ceramic resonator	RSS-035

DINB Assembly

SWITCH

Mark	Symbol & Description		Part No.
		Slide switch	VSH-008

CAPACITOR

Mark	Symbol & Description	Part No.
	C1	CGCYX473M25

OTHER

Mark	Symbol & Description		Part No.
		DIN Socket (8P)	VKN-081

◉ DACB Assembly (DWK1010)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC104	CXD1135Q
	IC105	CXK5816M-12L
	IC201	LC7881-C
	IC102, IC103	NJM082S
	IC202, IC203	NJM4558DX
	IC106	PDE024
	IC101	TC40H004P
	Q201	2SA1309A
	Q202, Q203	2SC3311A
	D106	FC54M
	D101	KV1225YBR
	D105, D107, D108	1SS254

COILS

Mark	Symbol & Description	Part No.
	VL101	VTL-275
	L101 Coil (4.7μH)	VTL1003

CAPACITORS

Mark	Symbol & Description	Part No.
	C201, C203, C204	CCCCH220J50
	C118	CCCCH560J50
	C107	CCCSL331J50
	C119	CCCSL391J50
	C104	CCCUJ221J50
	C103, C120, C202	CCCUJ330J50
	C113	CEALNP2R2M35
	C222, C223	CEALNP220M16
	C110	CEAL010M50
	C108, C109, C116, C117, C122	CEAL100M16
	C121, C123, C125, C205, C207	CEAL101M6R3
	C212, C213	CEAL220M16
	C105	CEAL470M16
	C112, C206, C209 – C211	CFTXA104J50
	C115	CFTXA474J50
	C131	CGCYX473K25
	C101, C124, C126	CGCYX473M25
	C220, C221	CKCYB561K50
	C218, C219	CKCYB681K50
	C102, C127 – C130, C224	CKPUYF103Z25
	C111	CQMA103J50
	C106	CQMA223J50
	C216, C217	CQMA472J50
	C214, C215	CQMA683J50
	C114	CQMA822J50

RESISTORS

Mark	Symbol & Description	Part No.
	R114, R115, R118, R120, R127, R128, R138	RN1/6PQ□□□□F
	VR102 Semi fixed (22k)	VRTB6VS223
	Other resistor	RD1/6PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	X101 Crystal resonator (16MHz)	VSS1004

KEY1 Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC2, IC3	PD0012A
	IC1	UPD6122G-001
	Q1	2SC1740S
	D37	HZS3B2
	D31 – D33	SLR-54VR3
	D1 – D15	SLR-54VR35H
	D18 – D21, D44	SLV-31DC3
	D16, D28 – D30	SLV-31MC3
	D17, D23 – D26	SLV-31VC3
	D36, D38 – D42	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S1 – S16 Tact switch	RSG-155

CAPACITORS

Mark	Symbol & Description	Part No.
	C2,C3	CCDSL101J50
	C5	CEALR47M50
	C4	CEAL470M6R3
	C1	CKPUYY103N16

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/6PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	X1 Ceramic resonator (500KHz)	VSS-048

KEY2 Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	D43	SLR-54VR35H
	D35	SLV-31DC3
	D34	SLV-31MC3

RESISTORS

Mark	Symbol & Description	Part No.
	R28, R29	RD1/6PM271J
	R30	RD1/6PM331J

SWITCHES

Mark	Symbol & Description	Part No.
	S17	RSG-155

VDTB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC204	CXL1009P
	IC206	M50552-132SP
	IC201	NJM2903S
	IC404 – IC406	NJM4558D
	IC403	NJM4558S
	IC205	PA0017
	IC202	PA5010
	IC401	PA5012
	IC402	PD6064A
	IC203	PM0001
	Q217, Q222, Q232, Q412 – Q414	UN4112
	Q218, Q223, Q401 – Q404, Q410, Q411	UN4212
	Q201, Q203, Q204, Q210, Q212, Q219, Q220, Q224 – Q226, Q230	2SA933S
	Q205 – Q209, Q211, Q213 – Q216, Q221, Q229, Q231, Q233 – Q235, Q405, Q406, Q408, Q409	2SC1740S
	Q407	2SC3064
	D207	HZS10NB2
	D401, D402	HZS3B2
	D203	HZS5B2
	D201, D202, D204, D205	1SS254
	D403 - D405	

COILS AND FILTER

Mark	Symbol & Description	Part No.
	L203 – L206, L213, L217, L218, L402 Axial inductor	LAU120J
	L211 Axial inductor	LAU121J
	L209 Axial inductor	LAU220J
	L207 Axial inductor	LAU221J
	L401 Axial inductor	LAU270J
	L212, L215 Axial inductor	LAU330J
	L214 Axial inductor	LAU560J
	L202, L210 Axial inductor	LAU680J
	L219, L220 Radial inductor	LRA120K
	L208 Radial inductor	LRA391K
	L216 Radial inductor	LRA561K
	F201 L.P.F (5.0MHz)	VTF1012

CAPACITORS

Mark	Symbol & Description	Part No.
	C227, C229	CCCCH100D50
	C240, C305, C336, C401, C405, C408, C456	CCCCH101J50
	C285	CCCCH120J50
	C253	CCCCH121J50
	C288, C420, C421	CCCCH150J50
	C255, C256, C298, C299, C418, C455	CCCCH151J50
	C214 – C216, C252, C327	CCCH180J50
	C251, C276, C309	CCCCH220J50
	C228, C326	CCCCH330J50
	C233, C283, C308	CCCCH390J50
	C304	CCCCH430J50
	C287, C293	CCCCH470J50
	C294, C307	CCCCH560J50
	C284, C406, C417	CCCCH680J50
	C223, C224	CCCCH820J50
	C310	CCCCH910J50
	C289	CCCSL221J50
	C225	CCCSL271J50
	C241	CCCSL331J50
	C226	CCCSL391J50
	C442	CEANP010M50
	C439	CEANP101M6R3
	C312, C429, C436	CEANP220M10
	C440	CEANP330M10
	C286	CEANP470M10
	C213	CEASR47M50
	C302	CEAS100M50
	C275, C277, C339	CEAS101M10
	C242, C265, C267, C269, C271, C292	CEAS220M25
	C237, C261 – C263	CEAS3R3M50
	C303, C330	CEAS330M16
	C438	CEAS4R7M50
	C205, C206, C210, C212, C234, C243, C247, C249, C254, C300, C316, C318, C323, C331, C332, C402, C414, C415, C446, C448, C450, C452, C454	CEAS470M10
	C268	CEAS471M6R3
	C218, C259, C290, C426, C435	CFTXA104J50
	C432	CFTXA124J50
	C260	CFTXA224J50
	C434	CFTXA394J50
	C428	CFTXA563J50
	C297	CFTXA683J50
	C407	CKCYB681K50

◉ DACB Assembly (DWK1010)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC104	CXD1135Q
	IC105	CXK5816M-12L
	IC201	LC7881-C
	IC102, IC103	NJM082S
	IC202, IC203	NJM4558DX
	IC106	PDE024
	IC101	TC40H004P
	Q201	2SA1309A
	Q202, Q203	2SC3311A
	D106	FC54M
	D101	KV1225YBR
	D105, D107, D108	1SS254

COILS

Mark	Symbol & Description	Part No.
	VL101	VTL-275
	L101 Coil (4.7μH)	VTL1003

CAPACITORS

Mark	Symbol & Description	Part No.
	C201, C203, C204	CCCCH220J50
	C118	CCCCH560J50
	C107	CCCSL331J50
	C119	CCCSL391J50
	C104	CCCUJ221J50
	C103, C120, C202	CCCUJ330J50
	C113	CEALNP2R2M35
	C222, C223	CEALNP220M16
	C110	CEAL010M50
	C108, C109, C116, C117, C122	CEAL100M16
	C121, C123, C125, C205, C207	CEAL101M6R3
	C212, C213	CEAL220M16
	C105	CEAL470M16
	C112, C206, C209 – C211	CFTXA104J50
	C115	CFTXA474J50
	C131	CGCYX473K25
	C101, C124, C126	CGCYX473M25
	C220, C221	CKCYB561K50
	C218, C219	CKCYB681K50
	C102, C127 – C130, C224	CKPUYF103Z25
	C111	CQMA103J50
	C106	CQMA223J50
	C216, C217	CQMA472J50
	C214, C215	CQMA683J50
	C114	CQMA822J50

RESISTORS

Mark	Symbol & Description	Part No.
	R114, R115, R118, R120, R127, R128, R138	RN1/6PQ□□□□F
	VR102 Semi fixed (22k)	VRTB6VS223
	Other resistor	RD1/6PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	X101 Crystal resonator (16MHz)	VSS1004

KEY1 Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC2, IC3	PD0012A
	IC1	UPD6122G-001
	Q1	2SC1740S
	D37	HZS3B2
	D31 – D33	SLR-54VR3
	D1 – D15	SLR-54VR35H
	D18 – D21, D44	SLV-31DC3
	D16, D28 – D30	SLV-31MC3
	D17, D23 – D26	SLV-31VC3
	D36, D38 – D42	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S1 – S16 Tact switch	RSG-155

CAPACITORS

Mark	Symbol & Description	Part No.
	C2,C3	CCDSL101J50
	C5	CEALR47M50
	C4	CEAL470M6R3
	C1	CKPUYY103N16

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/6PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	X1 Ceramic resonator (500KHz)	VSS-048

KEY2 Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	D43	SLR-54VR35H
	D35	SLV-31DC3
	D34	SLV-31MC3

RESISTORS

Mark	Symbol & Description	Part No.
	R28, R29	RD1/6PM271J
	R30	RD1/6PM331J

SWITCHES

Mark	Symbol & Description	Part No.
	S17	RSG-155

VDTB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC204	CXL1009P
	IC206	M50552-132SP
	IC201	NJM2903S
	IC404 – IC406	NJM4558D
	IC403	NJM4558S
	IC205	PA0017
	IC202	PA5010
	IC401	PA5012
	IC402	PD6064A
	IC203	PM0001
	Q217, Q222, Q232, Q412 – Q414	UN4112
	Q218, Q223, Q401 – Q404, Q410, Q411	UN4212
	Q201, Q203, Q204, Q210, Q212, Q219, Q220, Q224 – Q226, Q230	2SA933S
	Q205 – Q209, Q211, Q213 – Q216, Q221, Q229, Q231, Q233 – Q235, Q405, Q406, Q408, Q409	2SC1740S
	Q407	2SC3064
	D207	HZS10NB2
	D401, D402	HZS3B2
	D203	HZS5B2
	D201, D202, D204, D205	1SS254
	D403 - D405	

COILS AND FILTER

Mark	Symbol & Description	Part No.
	L203 – L206, L213, L217, L218, L402 Axial inductor	LAU120J
	L211 Axial inductor	LAU121J
	L209 Axial inductor	LAU220J
	L207 Axial inductor	LAU221J
	L401 Axial inductor	LAU270J
	L212, L215 Axial inductor	LAU330J
	L214 Axial inductor	LAU560J
	L202, L210 Axial inductor	LAU680J
	L219, L220 Radial inductor	LRA120K
	L208 Radial inductor	LRA391K
	L216 Radial inductor	LRA561K
	F201 L.P.F (5.0MHz)	VTF1012

CAPACITORS

Mark	Symbol & Description	Part No.
	C227, C229	CCCCH100D50
	C240, C305, C336, C401, C405, C408, C456	CCCCH101J50
	C285	CCCCH120J50
	C253	CCCCH121J50
	C288, C420, C421	CCCCH150J50
	C255, C256, C298, C299, C418, C455	CCCCH151J50
	C214 – C216, C252, C327	CCCH180J50
	C251, C276, C309	CCCCH220J50
	C228, C326	CCCCH330J50
	C233, C283, C308	CCCCH390J50
	C304	CCCCH430J50
	C287, C293	CCCCH470J50
	C294, C307	CCCCH560J50
	C284, C406, C417	CCCCH680J50
	C223, C224	CCCCH820J50
	C310	CCCCH910J50
	C289	CCCSL221J50
	C225	CCCSL271J50
	C241	CCCSL331J50
	C226	CCCSL391J50
	C442	CEANP010M50
	C439	CEANP101M6R3
	C312, C429, C436	CEANP220M10
	C440	CEANP330M10
	C286	CEANP470M10
	C213	CEASR47M50
	C302	CEAS100M50
	C275, C277, C339	CEAS101M10
	C242, C265, C267, C269, C271, C292	CEAS220M25
	C237, C261 – C263	CEAS3R3M50
	C303, C330	CEAS330M16
	C438	CEAS4R7M50
	C205, C206, C210, C212, C234, C243, C247, C249, C254, C300, C316, C318, C323, C331, C332, C402, C414, C415, C446, C448, C450, C452, C454	CEAS470M10
	C268	CEAS471M6R3
	C218, C259, C290, C426, C435	CFTXA104J50
	C432	CFTXA124J50
	C260	CFTXA224J50
	C434	CFTXA394J50
	C428	CFTXA563J50
	C297	CFTXA683J50
	C407	CKCYB681K50

Mark	Symbol & Description		Part No.
	C201 – C204, C207, C209, C211, C217, C230 – C232, C235, C236, C244 – C246, C248, C250, C257, C258, C264, C266, C270, C272 – C274, C278, C279, C281, C295, C296, C301, C311, C313, C315, C319, C320, C324, C325, C328, C329, C333 – C335, C337, C338, C403, C412, C416, C419, C422, C423, C444, C445, C447, C449, C451, C453, C457, C458		CKPUYY103N16
	C404		CQMA102J50
	C239, C431		CQMA103J50
	C411		CQMA122J50
	C430		CQMA153J50
	C424		CQMA182J50
	C433		CQMA223J50
	C238, C427		CQMA272J50
	C437		CQMA393J50
	C425, C441		CQMA472J50
	C291, C306		CQMA473J50
	C410		CQMA682J50
	C409		CQSA181J50
	VC401	Ceramic trimmer (30P)	VCM-005

RESISTORS

Mark	Symbol & Description		Part No.
	R204, R208, R209, R223 – R225, R236, R298, R460, R461, R470, R471		RN1/6PQ□□□□F
⚠	R401, R407		DCN1001
	VR202	Semi fixed (1k)	VRTB6VS102
	VR201	Semi fixed (220)	VRTB6VS221
	VR204	Semi fixed (470)	VRTB6VS471
	VR203, VR205	Semi fixed (4.7k)	VRTB6VS472
	VR401	Semi fixed (47k)	VRTB6VS473
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
	X401	Crystal resonator (3.750MHz)	VSS1018

PALB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC10, IC105	BU4053B
	IC1	BU74HCU04
	IC2	BU74HC00
	IC8, IC9	TA7320P
	IC101	TC74HC08AP

Mark	Symbol & Description	Part No.
	IC3, IC7	TC74HC10AP
	IC4, IC103	TC74HC107AP
	IC104	TC74HC123AP
	IC102	TC74HC32AP
	IC5, IC6	TC74HC74AP
	Q3, Q115	UN4112
	Q1, Q2, Q4	UN4212
	Q6, Q14, Q112	2SA933S
	Q5, Q7 – Q10, Q13, Q103 – Q111, Q113	2SC1740S
	D1	1SS254

COILS AND FILTERS

Mark	Symbol & Description		Part No.
	L1	Axial inductor	LAU1R2J
	L2	Axial inductor	LAU120J
	L3	Axial inductor	LAU121J
	L5	Axial inductor	LAU330J
	L4	Axial inductor	LAU680J
	L102, L103	Axial inductor	LAU8R2J
	L104, L105	Radial indictor	LRA120K
	F102	L.P.F (3.2MHz)	VTF1011
	F3	Trap filter (4.43MHz)	VTF1018
	F2	Band pass filter	VTF1030
	F1	COMB filter	VTF1032
	F101	B.P.F (4.43MHz)	VTF1034
	F4	EMI filter	VTH1012

CAPACITORS

Mark	Symbol & Description		Part No.
	C6, C10		CCCCH101J50
	C5, C27		CCCCH151J50
	C3		CCCCH330J50
	C23		CCCH390J50
	C4		CCCCH680J50
	C9		CCCSL271J50
	C1, C2		CCPUCH200J50
	C101, C110		CEANP220M10
	C24, C113		CEANP470M10
	C7, C15, C19, C22, C28, C30, C34, C39, C44, C46, C111, C112, C115, C116, C121, C129, C131, C133		CEAS470M10
	C108, C109		CKCYB681K50
	C8, C11, C12, C14, C16, C17, C20, C21, C25, C26, C29, C33, C35 – C38, C40 – C43, C45, C103 – C107, C128, C130, C132		CKPUYY103N16
	C18		CQMA102J50
	C13		CQMA182J50
	C119, C120		CQMA473J50
	VC1, VC2	Ceramic trimmer (20P)	VCM-008

RESISTORS

Mark	Symbol & Description		Part No.
	VR1, VR2, VR101	Semi fixed (470)	VRTB6VS471
	VR102	Semi fixed (4.7k)	VRTB6VS472
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
	X2	Crystal resonator (17.734MHz)	VSS1019
	X1	Crystal resonator (14.318MHz)	VSS1029
	DL101	Delay line (64μ sec)	VTF1019
	DL1	Delay line (750nsec)	VTF1037

Mark	Symbol & Description	Part No.
	C201 – C204, C207, C209, C211, C217, C230 – C232, C235, C236, C244 – C246, C248, C250, C257, C258, C264, C266, C270, C272 – C274, C278, C279, C281, C295, C296, C301, C311, C313, C315, C319, C320, C324, C325, C328, C329, C333 – C335, C337, C338, C403, C412, C416, C419, C422, C423, C444, C445, C447, C449, C451, C453, C457, C458	CKPUYY103N16
	C404	CQMA102J50
	C239, C431	CQMA103J50
	C411	CQMA122J50
	C430	CQMA153J50
	C424	CQMA182J50
	C433	CQMA223J50
	C238, C427	CQMA272J50
	C437	CQMA393J50
	C425, C441	CQMA472J50
	C291, C306	CQMA473J50
	C410	CQMA682J50
	C409	CQSA181J50
	VC401 Ceramic trimmer (30P)	VCM-005

RESISTORS

Mark	Symbol & Description	Part No.
	R204, R208, R209, R223 – R225, R236, R298, R460, R461, R470, R471	RN1/6PQ□□□□F
⚠	R401, R407	DCN1001
	VR202 Semi fixed (1k)	VRTB6VS102
	VR201 Semi fixed (220)	VRTB6VS221
	VR204 Semi fixed (470)	VRTB6VS471
	VR203, VR205 Semi fixed (4.7k)	VRTB6VS472
	VR401 Semi fixed (47k)	VRTB6VS473
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X401 Crystal resonator (3.750MHz)	VSS1018

PALB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC10, IC105	BU4053B
	IC1	BU74HCU04
	IC2	BU74HC00
	IC8, IC9	TA7320P
	IC101	TC74HC08AP
	IC3, IC7	TC74HC10AP
	IC4, IC103	TC74HC107AP
	IC104	TC74HC123AP
	IC102	TC74HC32AP
	IC5, IC6	TC74HC74AP
	Q3, Q115	UN4112
	Q1, Q2, Q4	UN4212
	Q6, Q14, Q112	2SA933S
	Q5, Q7 – Q10, Q13, Q103 – Q111, Q113	2SC1740S
	D1	1SS254

COILS AND FILTERS

Mark	Symbol & Description		Part No.
	L1	Axial inductor	LAU1R2J
	L2	Axial inductor	LAU120J
	L3	Axial inductor	LAU121J
	L5	Axial inductor	LAU330J
	L4	Axial inductor	LAU680J
	L102, L103	Axial inductor	LAU8R2J
	L104, L105	Radial indictor	LRA120K
	F102	L.P.F (3.2MHz)	VTF1011
	F3	Trap filter (4.43MHz)	VTF1018
	F2	Band pass filter	VTF1030
	F1	COMB filter	VTF1032
	F101	B.P.F (4.43MHz)	VTF1034
	F4	EMI filter	VTH1012

CAPACITORS

Mark	Symbol & Description	Part No.
	C6, C10	CCCCH101J50
	C5, C27	CCCCH151J50
	C3	CCCCH330J50
	C23	CCCH390J50
	C4	CCCCH680J50
	C9	CCCSL271J50
	C1, C2	CCPUCH200J50
	C101, C110	CEANP220M10
	C24, C113	CEANP470M10
	C7, C15, C19, C22, C28, C30, C34, C39, C44, C46, C111, C112, C115, C116, C121, C129, C131, C133	CEAS470M10
	C108, C109	CKCYB681K50
	C8, C11, C12, C14, C16, C17, C20, C21, C25, C26, C29, C33, C35 – C38, C40 – C43, C45, C103 – C107, C128, C130, C132	CKPUYY103N16
	C18	CQMA102J50
	C13	CQMA182J50
	C119, C120	CQMA473J50
	VC1, VC2 Ceramic trimmer (20P)	VCM-008

RESISTORS

Mark	Symbol & Description		Part No.
	VR1, VR2, VR101	Semi fixed (470)	VRTB6VS471
	VR102	Semi fixed (4.7k)	VRTB6VS472
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
	X2	Crystal resonator (17.734MHz)	VSS1019
	X1	Crystal resonator (14.318MHz)	VSS1029
	DL101	Delay line (64μ sec)	VTF1019
	DL1	Delay line (750nsec)	VTF1037

8. PICK-UP ASSEMBLY REPLACEMENT PROCEDURES

8.1 PICK-UP ASSEMBLY REPLACEMENT

1. Remove the bonnet and the bottom plate. (Fig.1)

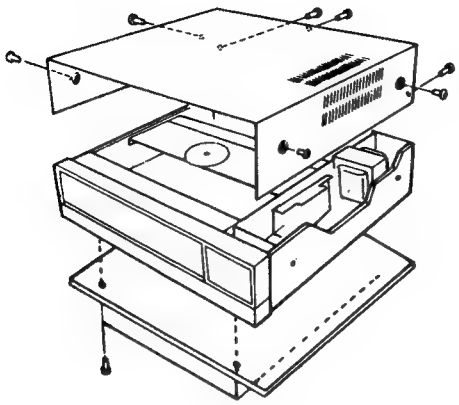


Fig.1

2. Switch the power on and press the OPEN/CLOSE key to eject the disc tray. Then switch the power off.
3. Shift the pick-up assembly to the position shown in Fig.2.

Note: Rather than turning the slider motor by hand, the pick-up assembly can be readily moved by connecting a 1.5V battery across the slider motor terminals.

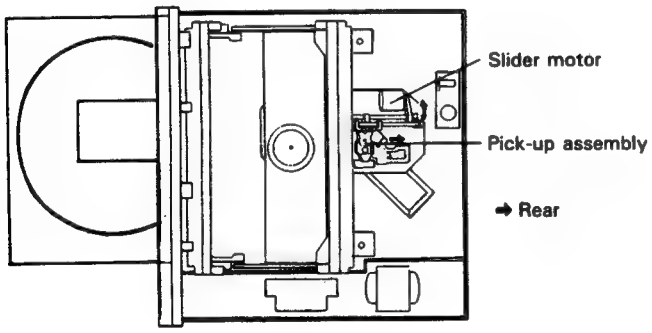


Fig.2

4. Undo five screws from ADCO assembly, and open ADCO assembly.(Fig.3)

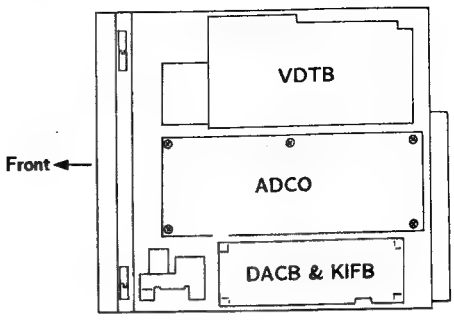
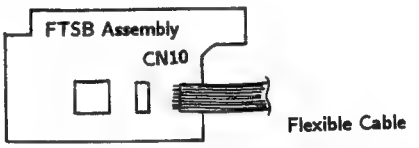


Fig.3

5. Disengage the CN10 lock in the FTSB assembly and carefully remove the flexible cable. In addition to protecting the cable from damage, also guard against electrostatic damage to the laser diode. For maximum protection, do not touch the conductor section of the cable under any circumstances.



6. Undo the pick-up securing screw from the top of the unit, and carefully remove the pick-up assembly. (Fig.4)

Note: Do not touch soldered sections on the pick-up assembly.

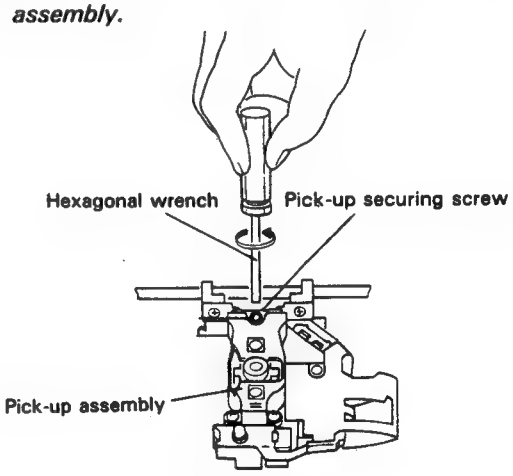


Fig.4

7. Mount a new pick-up assembly, tighten the securing screw, and carefully reconnect and lock the flexible cable to CN10 in the FTSB assembly. This completes replacement of the pick-up assembly.

Note: After replacing the pick-up assembly, check the spindle motor centering. *Refer to Page 83*

9. DISC TRAY REMOVAL

9.1 Disc Tray Removal Procedure

1. Remove the bonnet. (Fig.1)
2. Switch the power on and press the EJECT/STOP key to eject the disc tray. Then switch the power off and push the disc tray in by about 5cm.
3. Extract the rivet by pulling upwards and undo a screw then remove the switch holder assembly. (Fig.5)

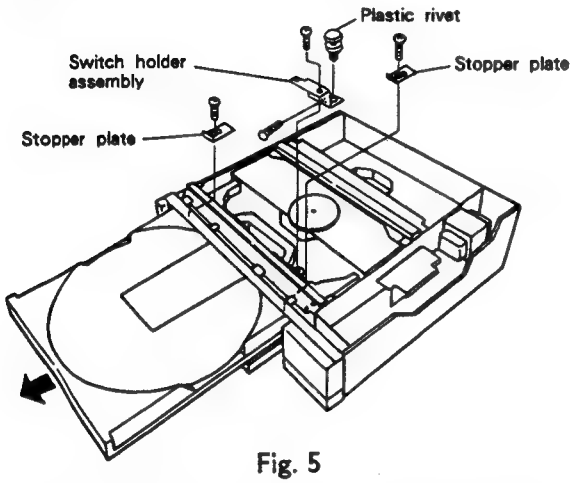


Fig. 5

4. Remove two screws to remove the stopper plate. (Fig.5)
5. Remove the disc tray by gently pulling forward.

9.2 Method for Clamping Disc when Disc Tray is Removed

1. Insert disc from the rear side and place it on the turntable.

Note: Take care not to let grease from the rails get on the disc surface.

2. Pull the lock levers (L) and (R) toward the rear while being pushed outwards, the clamper is lowered to clamp the disc. Check that the disc has been properly clamped by turning the clamper by hand. (Fig.6)

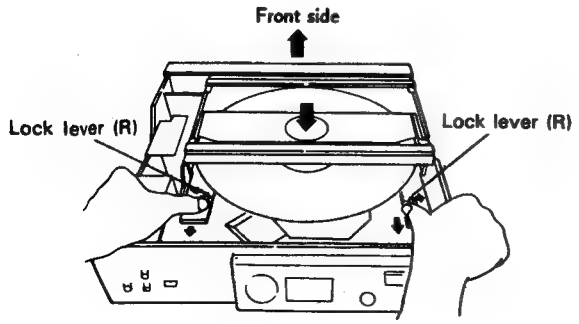


Fig.6

9.3 Play Procedure while Disc Tray is Removed

1. Switch the power on while pressing the slide switch, and then immediately press the play key. Release the slide switch after the disc starts to turn. (Fig.7)

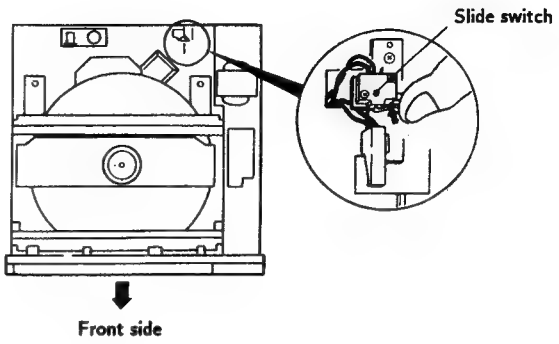


Fig.7

9.4 Disc Tray Insertion and Ejection

1. Insert the tray after aligning the disc tray tooth with the missing tooth section of the gear. (Fig.8)
2. Insert the rivet, switch spring, and stopper plate removed in steps 3 and 4 in procedure 9.1.

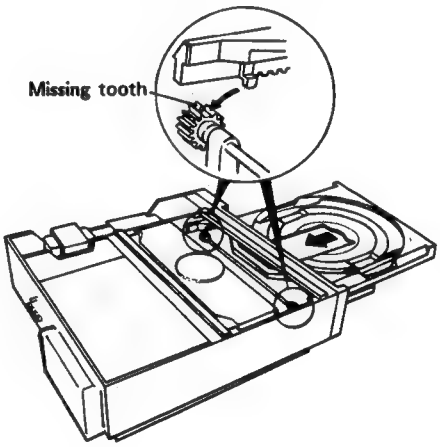


Fig.8

10. SERVICE MODE

● The LD-V200 is supplied with the two following service modes.

Service Mode

Test mode

Still, scan, search, etc and forced controls such as tracking servo and tilt servo are available by remote control.

Lens cleaning mode

The pick-up can be automatically moved to a position where it can be easily cleaned. Remote control will not be used for this purpose.

Connection of Remote control Unit

Remote control unit (CU-V300) can be connected to LD-V200 by applying to the connection jig (Fig.11). The construction of connection jig is shown on Fig.10, and the construction of I/O port (COINBOX TERMINAL) of LD-V200 is shown on Fig.9. The connection jig is connected to the I/O port, and the No.7 pin ($\overline{\text{SELECT}}$ input) of the I/O port will be short circuited to GND.

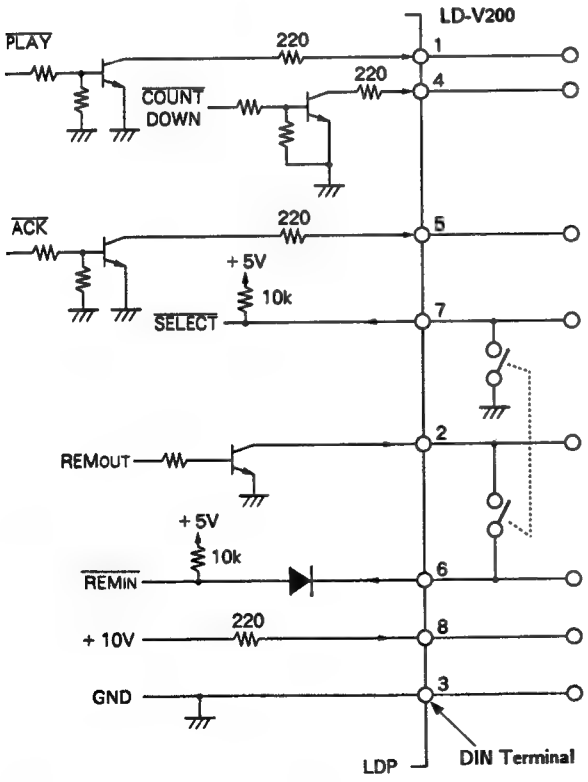


Fig.9 Circuit diagram of the COINBOX I/O port

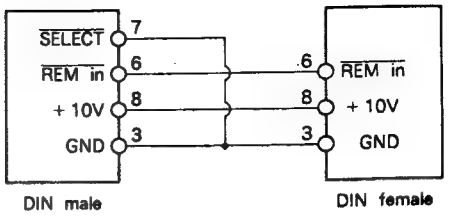


Fig. 10 Construction of connection jig

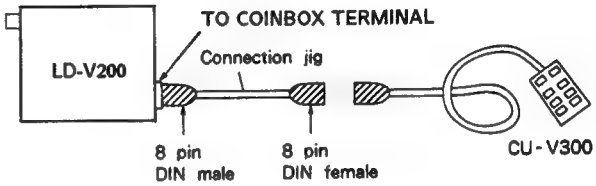


Fig.11 I/O port of LD-V200

● Test Mode

(1) Test mode setting procedures

1. The remote control unit is connected as described above, and the COINBOX MODE switch on the rear panel is released(ON). (Make the status COINBOX mode.)

   Remarks If the COINBOX MODE switch is not released, the power will not be supplied to the remote control unit and the unit will not work.

2. Press the "STEREO" key of the remote control unit. With the above procedures, the status will be test mode and be ready for remote control operation. Then LED indication will be as follows.

● In the test mode, all LED's on the front panel of LD−V200 will be lighted on in a sequence. Setting a disc and starting the rotation, each LED will be lighted off other than "PLAY" LED.

(2) Commands by "PROGRAM RUN" key and "NUMERIC" key

After the test mode setting, the following commands will be available by pressing "PROGRAM RUN" key and "0" key of the remote control unit.

1. "PROGRAM RUN" + "0"
   The following commands will be ready to be used.
2. "PROGRAM RUN" + "1"
   Indication of block error rate.
3. "PROGRAM RUN" + "2"
   Indication of program software version.
4. "PROGRAM RUN" + "3"
   Tracking servo OPEN/CLOSE (toggle operation)
5. "PROGRAM RUN" + "5"
   CX Default/Default (Toggle operation)
6. "PROGRAM RUN" + "6"
   Tilt servo FORCED OFF/NORMAL (Toggle operation)
7. "PROGRAM RUN" + "7"
   Switching of analog and digital audio output (Toggle operation) (The switching will not be made, If the disc is for analog audio only.)
8. "PROGRAM RUN" + "9"
   The mode being available the above commands will be released.

Remarks The mode being available the above commands, the disc table will not eject even if pressing the STOP/EJECT DISC SET key. If disc pull out is required, the mode must be released.

● Lens Cleaning Mode

(1) Lens cleaning mode setting procedures

1. A disc shall be dismounted and the disc table shall be loaded in the main unit.
   Remarks The slider will not work when the disc table come out or a disc is set.
2. Switch the power off, and open the bonnet cover assembly. The opend part is called "lens cleaning window". (Refer to Fig. 13)
3. Switch the power on with pressing the MODE key.

Alterate blinking of #1 and #2 keys indicates completion of lens cleaning mode.

After about eight seconds, the interchangeable blinking will change to simultaneous blinking when the slider movement is over.
Confirm the pick-up's position as designated (lens cleaning window), and fix the position if required. ([2] Refer to page 79, fixing method of pick-up's position.)

Switch the power off and clean the lens if the pick-up is on the right position.

Remarks 1) The STOP/EJECT DISC SET key will not work under the lens cleaning mode.
2) Do not make the power on when lens cleaning job.

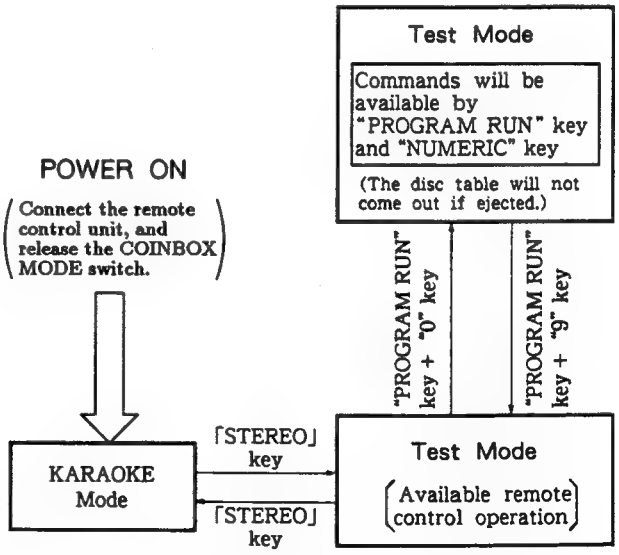


Fig. 12 Status of Test Mode

[2] Fixing method of pick-up's position

● Specific positioning adjustment of the pick-up may be required in case of mechanical load change or affection of power supply voltage, although the pick-up will be automatically set on the position of lens cleaning window when entering the lens cleaning mode.
If the pick-up is not on the right position, adjust the position with the following manner. Switch the power off when the adjustment is over.

1. In case of moving outside (rear side)
   ⇨ Push # 2 key with pressing the MODE key.
2. In case of moving inside (front side)
   ⇨ Push # 1 key with pressing the MODE key.

Remarks 1) Set the COINBOX MODE switch depressed (OFF). If it cannot be depressed, try again with connecting to the coin box.
2) If the slider's shift is required, move it carefully with peeping through the lens cleaning window.
Do not move the pick-up to the dead end of the outside.
3) The slider cannot be moved when the disc table is out or a disc is set.

[3] Lens Cleaning

● **Cleaning conditions**

'87 pick-up
1. Lens cleaning liquid GEM1004 and cleaning paper GED-008 shall be used.
2. Lens face shall be cleaned by the paper rubbing ten times of rotation with 10 – 20 grams of pressure.
3. Lens cleaning jig GGF-194 shall be used for protecting actuator.

[4] After Lens Cleaning

1. Switch the power on after jigs and tools are left off. (Then the MODE key shall not be pressed.)

⇩

The slider will move and stop at the home position.

2. When slider's shift is over, switch the power off and fix the bonnet cover assembly with screws.

Remarks 1) The above procedures are for defeating accidents in the lens cleaning window, which will be caused by unexpected things. Therefor the procedures shall be strictly followed.

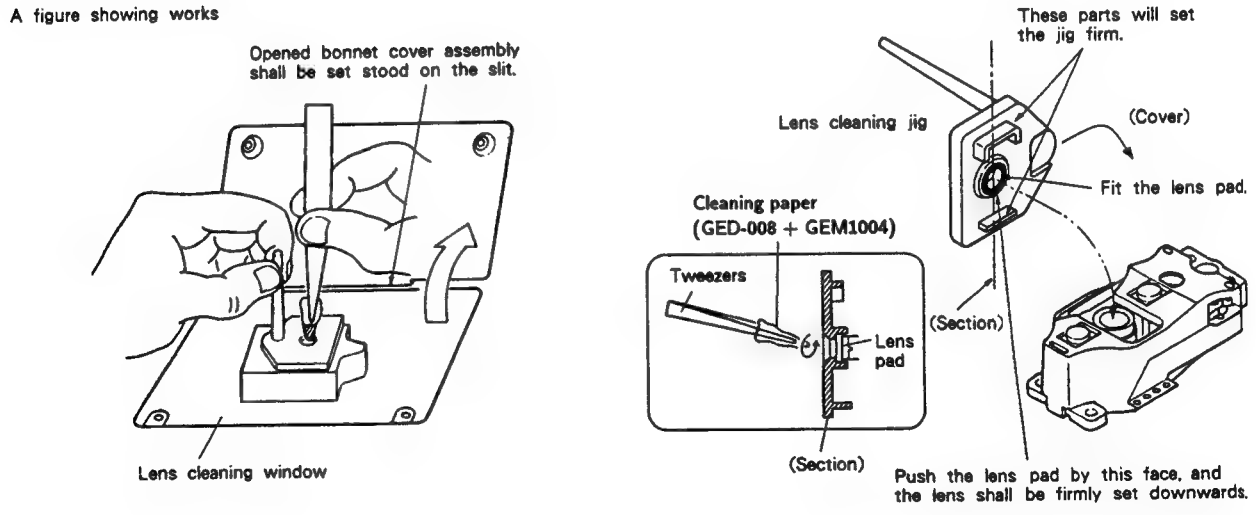


Fig. 13 Lens cleaning

11. ADJUSTMENT

11.1 JIGS AND INSTRUMENTS REQUIRED FOR ADJUSTMENTS

- Small screwdriver (about 7cm long axis)
- Small Philips head screwdriver (at least 15cm long axis)
- Hexagonal wrench (2.00mm and 2.5mm)
- L-shaped eccentric driver (GGV-129)
- 1.5V battery with lead wires
- Low-pass filter (100k Ω + 1μF)
- Dual-trace oscilloscope (with delay)
- AF generator
- Frequency counter
- LD test disc J1(PAL disc) for Mechanical Adjustment and Electrical adjustment
- LD test disc GGV1002(NTSC disc) for Electrical Adjustment
- Shorting clips
- Digital voltmeter

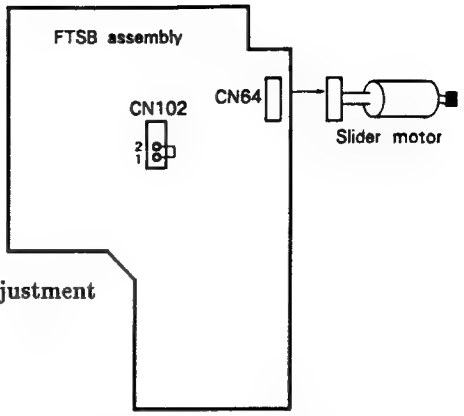


Fig. 14 Connection of TRKG servo loop open

11.2 ADJUSTMENT PREPARATIONS AND PRECAUTIONS

1. Player settings

For most adjustment procedures, the player should be stood on its side with the power transformer at the bottom.

2. Opening the tracking servo

Set the test mode by remote control unit.

— Without commands by "PROGRAM RUN" key and "NUMERIC" key —

- TRKG servo loop will be open if FTSB assembly CN102-1 and CN102-2 are connected each other (means CN102-1 is connected to GND). If the pick-up moves while TRKG servo loop is open, set free the connector (CN64 of the FTSB assembly) of the slider motor. (Fig.14)
  And then remote control unit RU-5000 will be also available instead of CU-V300. (However, commands by "PROGRAM RUN" key and "NUMERIC" key will not work with RU-5000.)

— With commands by "PROGRAM RUN" key and "NUMERIC" key —

1) The tracking servo will be open if "PROGRAM RUN" + "0" are pressed and continuously "PROGRAM RUN" + "3" of the remote control unit are pressed. The tracking servo will be closed if "PROGRAM RUN" + "3" are pressed again.
   (Likewise, OPEN/CLOSE will be repeated by pressing "PROGRAM RUN" + "3".)

— Command release by "PROGRAM RUN" key and "NUMERIC" key —

1) Commands generated by "PROGRAM RUN" key and "NUMERIC" key will be released of "PROGRAM RUN" + "9" of the remote control unit are pressed or the power supply is switched off.
   Note : As for the test mode setting procedures, please refer to "● Test mode" in page 77.

3. Grating adjustment and Pick-up Tangential Direction Angle adjustment

— Adjusting with player standing on its side —

Remove VDTB and ADCO assembly, then remove PALB assembly together with the chassis (including PCB stay-L) and stand the player on its side as shown in Fig.15-2. The grating and Pick-up Tangential Direction Angle can be adjusted by inserting a small screwdriver and a hexagonal wrench through the gap between the mechanical assembly and chassis. (Fig.15-1 and 15-2)

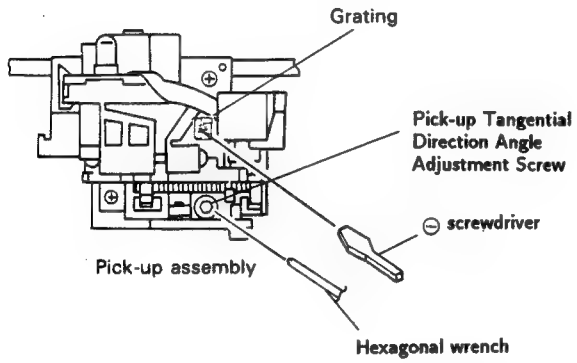


Fig.15-1

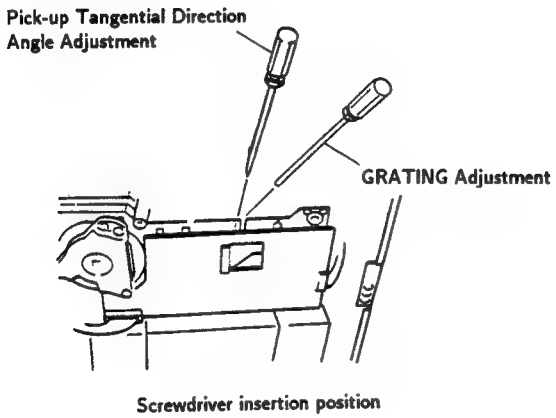


Fig.15-2

— Adjusting with player lying flat —

Approaching from the direction shown in Fig.16, insert a small screwdriver along the edges of the two guides in the pick-up assembly as shown in Fig.17 and into the grating adjustment hole.

In this case, adjustments cannot be made unless the disc table is pulled out.

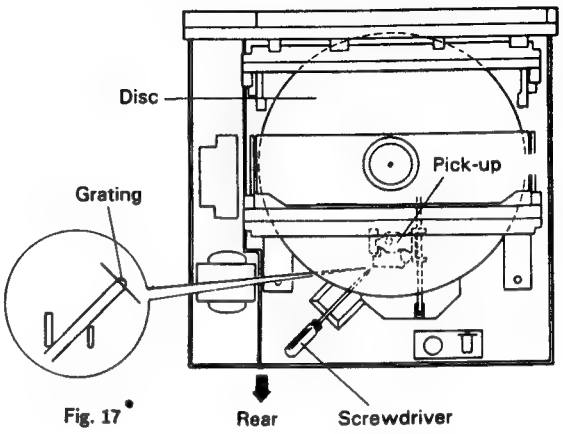


Fig. 17

Fig. 16

4. Pick-up Tracking Direction Angle adjustment and Tilt sensor inclination adjustment

Removing the rear cover, you will find two holes for screwdrivers.

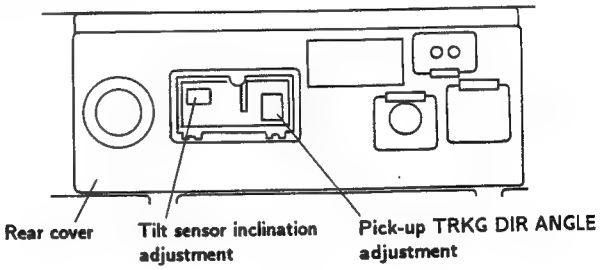


Fig. 18

5. Unless specified otherwise, all oscilloscope settings shown in the connection diagrams are values obtained by using a 10:1 probe.

6. Test discs

The LD test discs used in these adjustments may be either N series or F series. The frame numbers given in the text are N series numbers while those enclosed in parentheses are F series numbers.

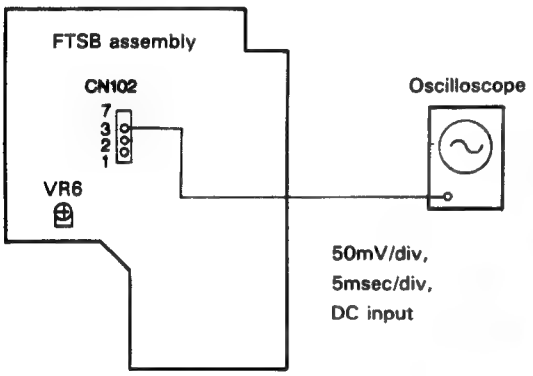
11.3 MECHANICAL ADJUSTMENTS

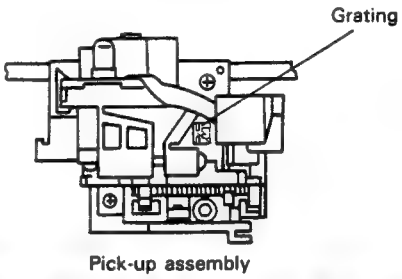
1. ROUGH GRATING AND TRACKING (TRKG) BALANCE ADJUSTMENTS 11.3 Mechanical Adjustments

- Purpose: Adjust the laser beam (divided into 3 beams by grating) to the optimum position on the playback tracks. Adjust TRKG servo offset voltage to 0V.
- Symptoms indicating need for adjustment: Improper tracking (Jumping, Skipping etc.)

• Measuring instruments and jigs	• Small screwdriver • Oscilloscope
• Measuring position	• FTSB assembly CN102-3 (TRKG error)
• Test disc and player mode	• LD test disc #17,000 • Test mode (TRKG servo open)
• Adjustment position	• Grating • FTSB assembly VR6 (TRKG balance)

Connection diagrams





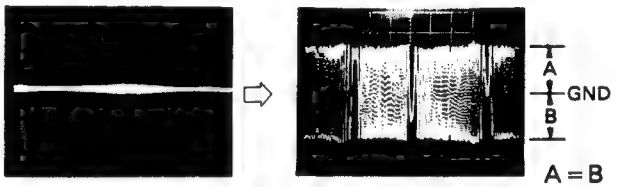


Photo 1. On-track position

Photo 2. Maximum amplitude

Adjustment Procedure

<Rough Grating Adjustment>

1. Play an LD test disc.
2. Press the DISPLAY key to display the frame # on the TV screen.
3. Move the pick-up to frame #17,000 by scanning or searching.
4. Open the TRKG servo. (See p.78)
5. Connect the oscilloscope to CN102-3 of the FTSB assembly and observe the waveform.
6. Insert a small screwdriver into the grating adjustment hole (see p.81) and turn the grating so that the amplitude of the TRKG error signal varies large and small alternately. Find the position where the waveform amplitude reaches a minimum with a smooth waveform envelope. (See Photo 1.) (This condition indicates that the 3-way split laser beam is directed onto a single track. This is called the "on-track" position.)
7. Slowly turn the grating counterclockwise from the on-track position until the gradually increasing TRKG error waveform amplitude reaches a maximum. (See Photo 2.)
8. Close the TRKG servo and check that a normal picture is displayed on the TV screen.

<TRKG Balance Adjustment>

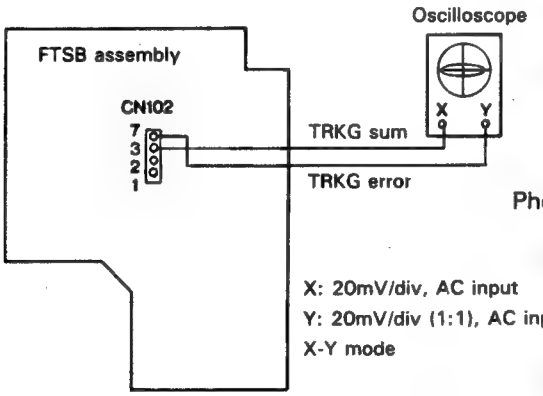
1. Align the oscilloscope GND with the center of the oscilloscope screen.
2. Adjust VR6 in the FTSB assembly to a position where the positive and negative halves of the TRKG error waveform are equal. (See Photo 2.)

2. SPINDLE MOTOR CENTERING CHECK

- Purpose: Check that the spindle motor is centered on the locus traced by the laser beam.

• Measuring instruments and jigs	• Oscilloscope
• Measuring position	• FTSB assembly CN102-3 (TRKG error) and CN102-7 (TRKG sum)
• Test disc and player mode	• LD test disc • Test mode (TRKG servo: open)
• Adjustment position	• Lissajous figure check

Connection diagrams



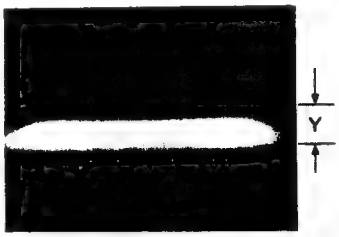


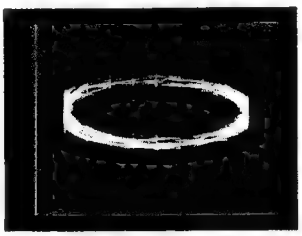
Photo 3 Lissajous figure at inner track of LD disc

Photo 4 Lissajous figure at outer track of LD disc

Check Procedure

1. Play an LD test disc
2. Move the pick-up to the inner tracks of the disc by scanning or searching, and then open the TRKG servo.
3. Connect the oscilloscope X input (CH-1) to CN102-3 of the FTSB assembly, and the Y input (CH-2) to CN102-7. Switch the oscilloscope to X-Y mode and observe the Lissajous figures of the TRKG error and TRKG sum signals.
4. Record the amplitude of the Lissajous figures along the Y axis.
5. Close the TRKG servo, and move the pick-up to the outer tracks of the disc by scanning or searching. Open the TRKG servo again and observe the Lissajous figure.
   Check that the amplitude of the Lissajous figures along the Y axis is the same as that recorded in step 4 above.

If it is not the same, proceed to the "Spindle Motor Centering Adjustment" procedure.



Lissajous figure indicating need for adjustment

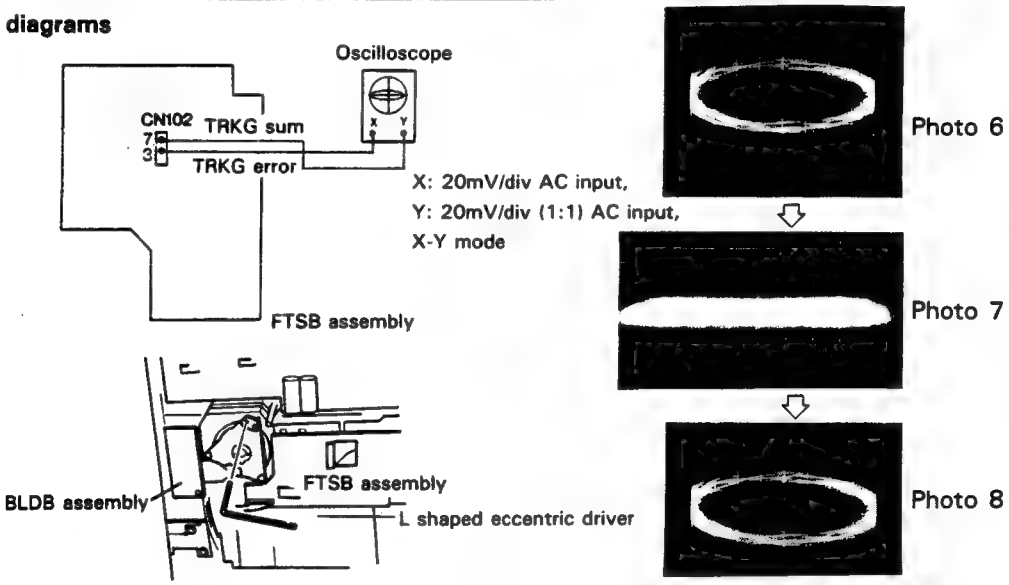
Photo 5.

3. SPINDLE MOTOR CENTERING ADJUSTMENT

- Purpose: Position the spindle motor center on the production of laser beam locus.
- Symptoms indicating need for adjustment: Track jumping. Long search times.

• Measuring instruments and jigs	• L-shaped eccentric driver (GGV-129) • 2.5mm hexagonal wrench • Oscilloscope
• Measuring position	• FTSB assembly CN102-3 (TRKG error) and CN102-7 (TRKG sum)
• Test disc and player mode	• LD test disc • Test mode (TRKG servo: open/close)
• Adjustment position	• Spindle motor centering adjustment hole • Grating

Connection diagrams



Adjustment Procedure

Note: This adjustment is necessary only when indicated by the Spindle Motor Centering Check.

1. Loosen the three spindle motor setscrews by turning each about half a turn.
2. Connect the oscilloscope X input (CH-1) to CN102-3 of the FTSB assembly, and the Y input (CH-2) to CN102-7.
3. Play a LD test disc, and move the pick-up to the outer tracks of the disc by scanning or searching.
4. Open the TRKG servo, and observe the Lissajous figures of the TRKG error and TRKG sum signals.
5. Fine adjust the grating until the amplitude of the Lissajous figures along the Y axis reaches a minimum. (See Photo 7.)
6. Close the TRKG servo, and move the pick-up to the inner tracks of the disc by scanning or searching.
7. Open the TRKG servo again and observe the Lissajous figures. Record the amplitude on the Y axis.
8. Insert the L-shaped eccentric screwdriver into the adjustment hole, and slowly turn in the direction which reduces the Lissajous figures amplitude on the Y axis. After reaching the minimum amplitude, continue turning the eccentric driver to the same direcction until the same amplitude as that recorded in step 7 is reached. (See Photos 6 thru 8.)
9. Close the TRKG servo, and move the pick-up back to the outer tracks of the disc by scanning or searching.
10. Repeat steps 4, 5, and 6.
11. Open the TRKG servo again and observe the Lissajous figures. Check that the amplitude along the Y axis has reached a minimum. If the Lissajous figures are still inflated in the Y axis direction, repeat steps 8 thru 11.

4. PICK-UP TRACKING DIRECTION INCLINATION ADJUSTMENT

- Purpose: Adjustment of slider shaft inclination to ensure that the pick-up assembly moves parallel to the disc surface, and adjustment of the pick-up assembly tracking direction angle to ensure that the laser beam is beamed perpendicularly at the disc.
- Symptoms indicating need for adjustment: Crosstalk

• Measuring instruments and jigs	• Oscilloscope • Battery with lead wires • Low-pass filter • 2.5mm hexagonal wrench
• Measuring position	• FTSB assembly CN103-5 (FOCS drive)
• Test disc and player mode	• LD test disc #17,222, #98
• Adjustment position	• Pick-up tracking direction angle adjustment screw • Adjust slider shaft angle with tilt motor

Connection diagrams

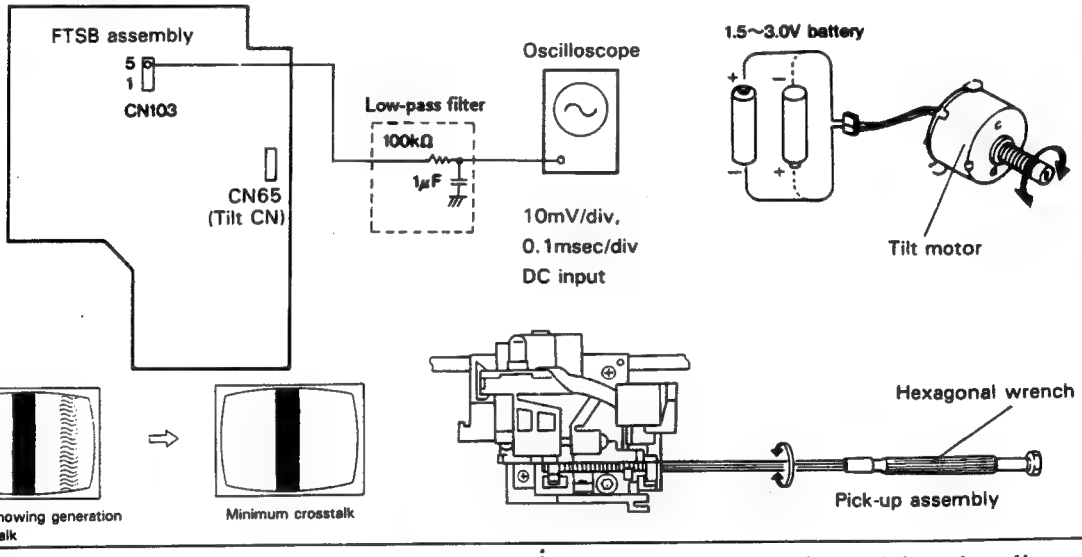


Fig.19

Fig.20

Adjustment Procedure

1. Disconnect the FTSB assembly CN65 (tilt motor) connector, and do not connect it again until the "Tilt Sensor Angle Adjustment" has been completed.
2. Play an LD test disc, and search to frame #98 where the tilt fulcrum is located.
3. Connect the oscilloscope to CN103-5 of the FTSB assembly via a low-pass filter, and observe the focus drive voltage. The oscilloscope GND level does not have to be aligned in the center of the screen at this stage.
4. Adjust the Y axis position adjustment knob on the oscilloscope to position the focus drive voltage waveform in the center of the oscilloscope screen.
5. If the focus drive voltage measured when searching for frame #17,222 differs from that obtained in step 4 above, connect a battery (1.5 to 3V) to the tilt motor connector, and turn the motor until the focus drive voltage is within ±50mV of the step 4 voltage. (Fig.19)
6. Insert the hexagonal wrench into the adjustment hole in the rear panel, and adjust the pick-up tracking direction inclination adjustment screw to minimize the crosstalk on the left and right hand sides of the TV screen. (Fig.20)
7. Search to frame #98 and check that crosstalk on the left and right hand sides of the TV screen has been minimized, and that it is about equal on both sides. If the level of crosstalk on the TV screen is still too high, repeat steps 6 and 7.

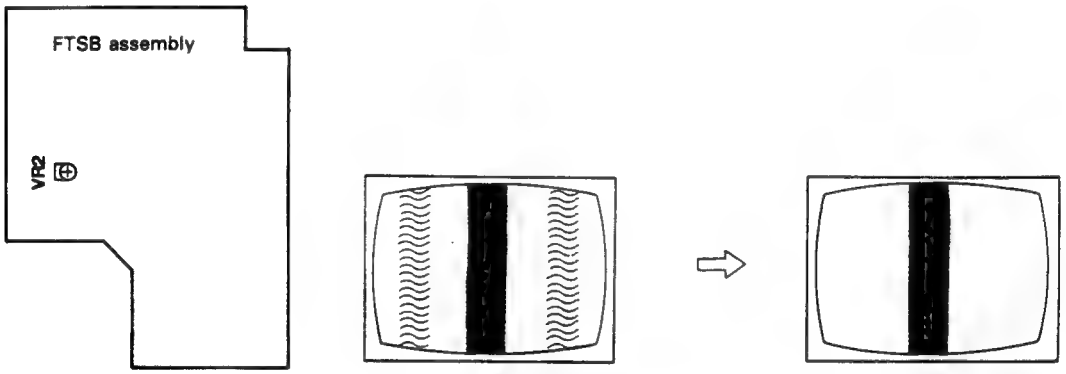
5. LD FOCS ERROR BALANCE ADJUSTMENT

- Purpose: To ensure that the FOCS servo maintains the objective lens at the optimum distance from disc during LD playback.

- Symptoms indicating need for adjustment: Crosstalk

• Measuring instruments and jigs	• TV monitor
• Measuring position	• Player video output terminals
• Test disc and player mode	• LD test disc #98
• Adjustment position	• FTSB assembly VR2

Connection diagrams



Screen showing generation of crosstalk

Minimum crosstalk

Adjustment Procedure

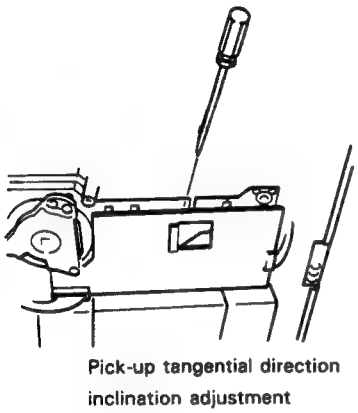
1. Play an LD test disc, and search to frame #98.
2. Adjust VR2 on the FTSB assembly to minimize crosstalk in the left and right hand sides of the TV screen. If this adjustment fails to reduce crosstalk down to the allowable level, go to the "Pick-up Tangential Direction Angle Adjustment" procedure.

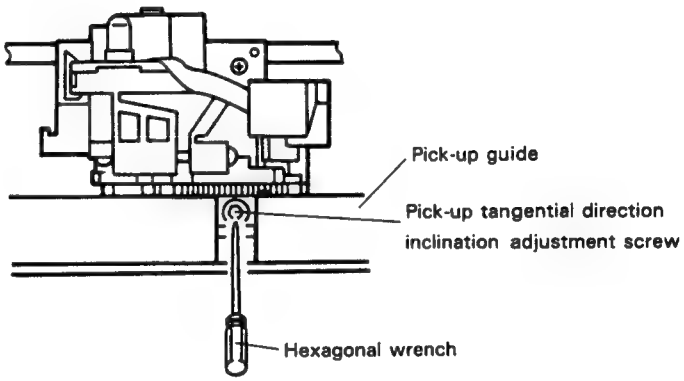
6. PICK-UP TANGENTIAL DIRECTION ANGLE ADJUSTMENT

- Purpose: Adjustment of pick-up tangential direction inclination to minimize crosstalk.
- Symptoms indicating need for adjustment: Conspicuous crosstalk

• Measuring instruments and jigs	• TV monitor
• Measuring position	• Crosstalk on the screen • FTSB assembly CN102-3 (TRKG error)
• Test disc and player mode	• LD test disc #17,222, #98 • Test mode (TRKG servo: open/close)
• Adjustment position	• Pick-up tangential direction inclination adjustment screw

Connection diagrams (For the connection diagrams, refer to page 82.)





Adjustment Procedure

Note: This adjustment is necessary only if crosstalk remains conspicuous after completing the "Pick-up Tracking Direction Inclination Adjustment" and "LD FOCS Error Balance Adjustment" procedures.

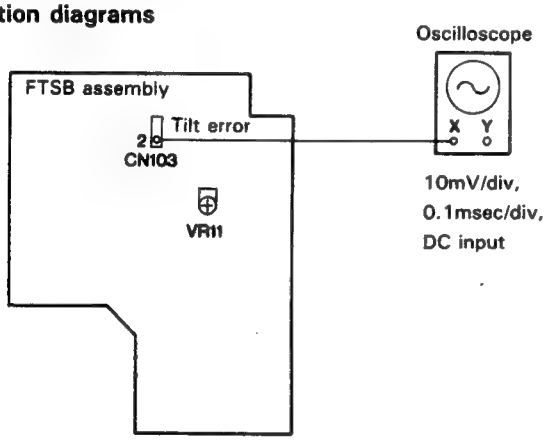
1. Play an LD test disc, search to frame #17,222, and open the TRKG servo.
2. Connect the oscilloscope to CN102-3 of the FTSB assembly and observe the TRKG error waveform.
3. Insert the hexagonal wrench through the gap between chassis and mechanical assembly to the pick-up tangential direction inclination adjustment screw.
4. Adjust this screw until the TRKG error waveform reaches maximum amplitude.
5. Remove the hexagonal wrench, then search to frame #98 and check that crosstalk on the left and right hand sides of the TV screen has been minimized, and that it is about equal on both sides. Repeat steps 4 and 5 if considered necessary.

7. TILT SENSOR INCLINATION ADJUSTMENT

- Purpose: Adjustment of the tilt servo offset voltage to 0V by adjustment of tilt sensorinclination.
- Symptoms indicating need for adjustment: Crosstalk

• Measuring instruments and jigs	• Oscilloscope • Philips head screwdriver
• Measuring position	• FTSB assembly CN103-2 (tilt error)
• Test disc and player mode	• LD test disc #17,222, #98 (TRKG servo: closed)
• Adjustment position	• Tilt sensor inclination adjustment screw • FTSB assembly VR11 (tilt gain)

Connection diagrams



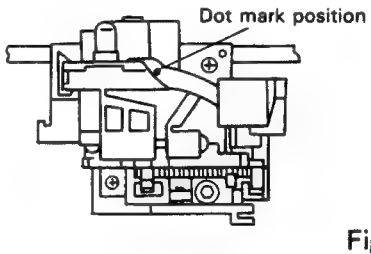
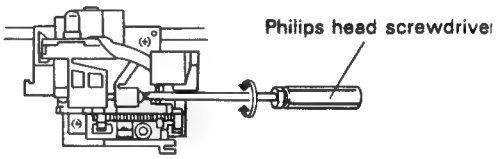


Fig.21



Tilt sensor inclination adjustment

Fig.22

Adjustment Procedure

1. Check the color of the dot marked on the flexible cable next to the tilt sensor. (Fig.21)
   There are three types of dots. Adjust VR11 on the FTSB assembly accordingly.
   Red dot ... Turn VR11 fully clockwise.
   Blue dot ... Turn VR11 fully counter clockwise.
   No dot (no mark) ... Adjust VR11 to center position.
2. Play an LD test disc, and search to frame #17,222.
3. Connect the oscilloscope to CN103-2 of the FTSB assembly, and observe the tilt error DC voltage.
4. Insert a Philips head screwdriver with a long shaft through the rear panel and adjust the tilt sensor inclination adjustment screw until the tilt error DC voltage reads 0V. (See Fig.22)
   During this step, it does not matter if the pick-up is displaced a little from the designated frame by the screwdriver.
5. Connect the tilt motor connector CN65 disconnected during the "Pick-up Tracking Direction Inclination Adjustment".
6. Search to frame #98 and check that crosstalk on the left and right hand sides of the TV screen has been minimized, and that it is about equal on both sides.

8. FINE GRATING ADJUSTMENT AND TRKG BALANCE ADJUSTMENT CHECK

- Purpose: • Fine adjustment of the grating to ensure that the two beams for TRKG servo are directed to the optimum positions in the disc track.
  • Adjustment of TRKG servo loop offset voltage to 0V.
- Symptoms indicating need for adjustment: Improper Tracking (Skip. Jump etc)

• Measuring instruments and jigs	• Oscilloscope • Screwdriver
• Measuring position	• FTSB assembly CN102-3 (TRKG error), CN102-7 (TRKG sum)
• Test disc and player mode	• LD test disc #17,000 • Test mode (TRKG servo: open)
• Adjustment position	• Grating • FTSB assembly VR6

Connection diagrams

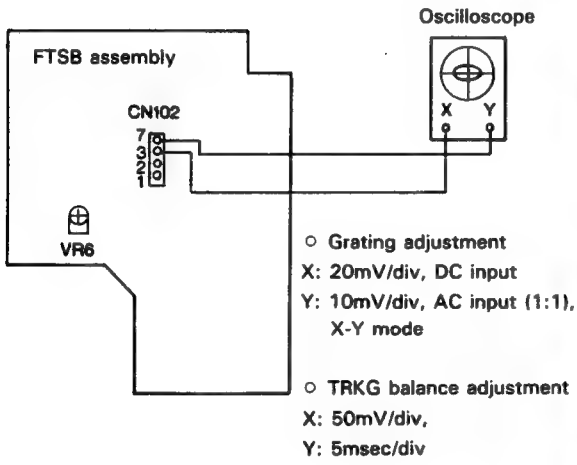


Photo 9.
Fine grating adjustment

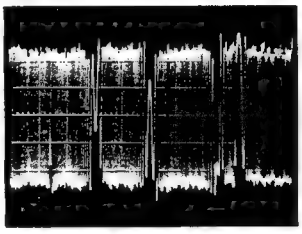


Photo 10.
TRKG balance adjustment

Adjustment procedure

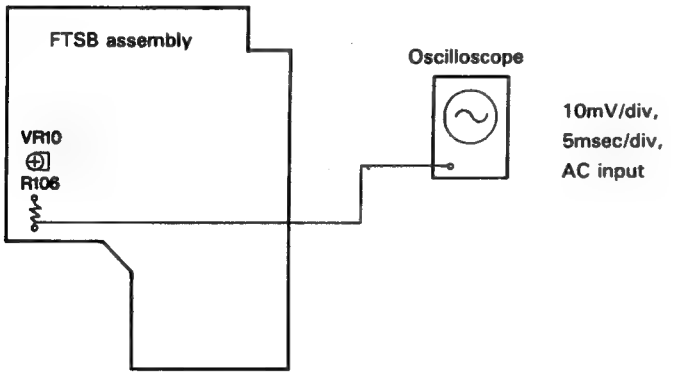
1. Play an LD test disc, search to frame #17,000, and open the TRKG servo.
2. Connect the oscilloscope X input (CH-1) to CN102-3 of the FTSB assembly, and the Y input (CH-2) to CN102-7.
   Switch the oscilloscope to X-Y mode, and observe the Lissajous figures for the TRKG error and TRKG sum signals.
3. Insert a small screwdriver into the grating adjustment hole (see p.81), and fine adjust the grating until the amplitude of the Lissajous figures along the Y axis reaches a minimum. (Photo 9.)
   If the grating is turned too far and the optimum position can no longer be found, repeat the "Rough Grating Adjustment".
4. Using the X input (CH-1) of the oscilloscope, check that the positive and negative amplitudes of the TRKG error signal are equal. (Photo 10.) If they are not equal, repeat the "Tracking Balance Adjustment".
5. Close the TRKG servo, and check that a normal picture is shown on the TV screen.

9. RF GAIN ADJUSTMENT

- Purpose: Adjustment of RF signal amplitude to the optimum value.
- Symptoms indicating need for adjustment: Frequent drop-out

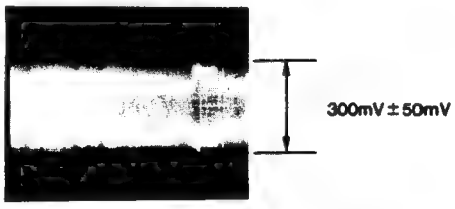
• Measuring instruments and jigs	• Oscilloscope
• Measuring position	• Lead of R106 on FTSB assembly (RF signal)
• Test disc and player mode	• LD test disc #17,000 (TRKG servo: closed)
• Adjustment position	• FTSB assembly VR10 (RF gain)

Connection diagrams



Adjustment procedure

1. Play an LD test disc and search to frame #17,000.
2. Connect the oscilloscope to the lead of R106 on the FTSB assembly and observe the RF signal.
3. Adjust VR10 on the FTSB assembly to obtain an RF signal amplitude of 300mV ±50mV. (Photo 11.)



RF signal

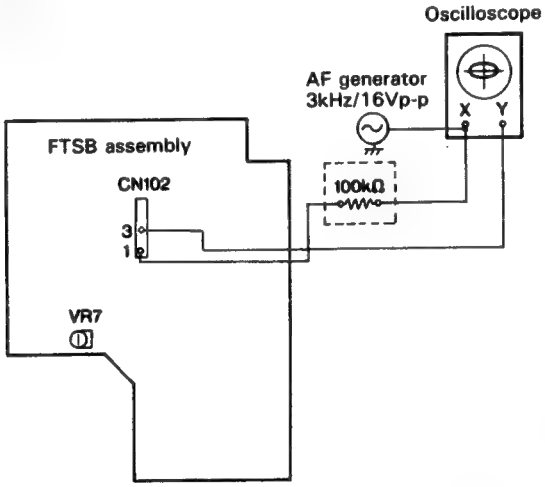
Photo 11

10. TRKG SERVO LOOP GAIN ADJUSTMENT

- Purpose: Adjustment of TRKG servo loop gain to the optimum value.
- Symptoms indicating need for adjustment: Improper tracking (Skip, Jump, etc)

• Measuring instruments and jigs	• Oscilloscope • Resistor (100kΩ) • AF generator
• Measuring position	• FTSB assembly CN102-1 (TRKG error), CN102-3 (TRKG gain)
• Test disc and player mode	• LD test disc #17,000 (TRKG servo: close)
• Adjustment position	• FTSB assembly VR7

Connection diagrams



X: 0.2V/div, DC input,
Y: 10mV/div, DC input,
X-Y mode

Adjustment procedure

1. Play an LD test disc and search to frame #17,000.
2. Connect the resistor, AF generator, and oscilloscope to CN102 on the FTSB assembly as shown in the diagram.
3. Set the AF generator output to 3kHz/16Vp-p.
4. Put the oscilloscope into X-Y mode, and observe the Lissajous figures.
5. Adjust VR7 on the FTSB assembly until the Lissajous figures become symmetrical along the respective X and Y axes of the oscilloscope. (Photo 12.)

   Note: If the AF generator output does not exceed 16Vp-p, decrease the value of the above resistor (100kΩ) until the Lissajous figures become easy to observe. (33kΩ limit.)

Out of adjustment

After adjustment

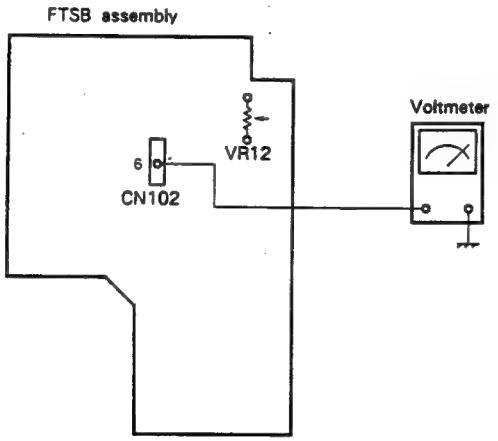
Photo 12

11. FOCS SUM LEVEL ADJUSTMENT

- Purpose : Adjustment of FOCS (A + B) level to the optimum value.
- Symptoms indicating need for adjustment : Tracking jumping.

• Measuring instrument and jigs	• Voltmeter
• Measuring position	• CN102-6 (FOCS (A + B))
• Test disc and player mode	• LD test disc # 4,760 (# 4,760) • STILL
• Adjustment position	• FTSB assembly VR12

Connection diagram



Adjustment Procedure

1. Play an LD test disc and search to frame # 4,760 (# 4,760).
2. Measure the voltage of CN102-6 (FOCS (A + B)).
3. Adjust VR12 on the FTSB assembly to obtain a CN102-6 voltage of 2V ± 200mV.

12. FOCS SERVO LOOP GAIN ADJUSTMENT

- Purpose: Adjustment of FOCS servo loop gain to the optimum value.
- Symptoms indicating need for adjustment: Poor blayback performance
  Improper focusing. (No initial focusing, intermittent play etc)

• Measuring instruments and jigs	• Oscilloscope • Resistor (100kΩ) • AF generator
• Measuring position	• FTSB assembly CN102-5 (FOCS error), CN102-4 (FOCS gain)
• Test disc and player mode	• Suspend FOCS motor protector circuit function. • LD test disc #17,000
• Adjustment position	• FTSB assembly VR1

Connection diagrams

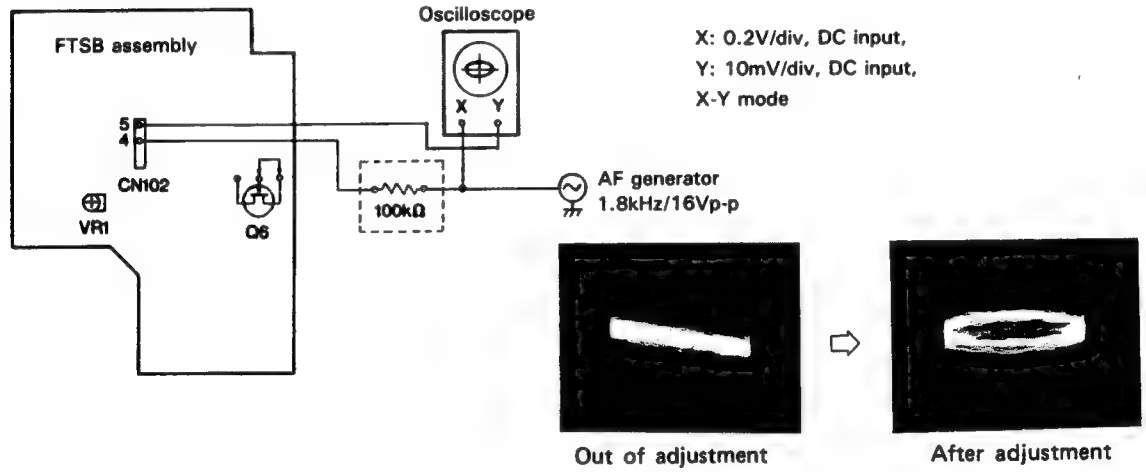


Photo 13

Adjustment procedure

1. Connect the gate of FTSB assembly Q6 (2SK184) to ground to suspend the focus motor protector circuit function.
2. Connect the resistor, AF generator, and oscilloscope to CN102 on the FTSB assembly as shown in the diagram.
3. Set the AF generator output to 1.8kHz/16Vp-p.
4. Put the oscilloscope into X-Y mode, and observe the Lissajous figures.
5. Adjust VR1 on the FTSB assembly until the Lissajous figures become symmetrical along the respective X and Y axes of the oscilloscope. (Photo 13.)
6. Disconnect the gate of FTSB assembly Q6 from ground.

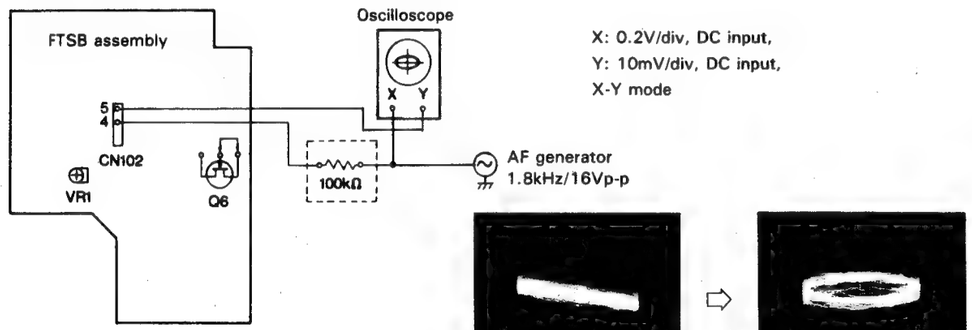
Note: If the AF generator output does not exceed 16Vp-p, decrease the value of the above resistor (100kΩ) until the Lissajous figures become easy to observe. (33kΩ limit.)

12. FOCS SERVO LOOP GAIN ADJUSTMENT

- Purpose: Adjustment of FOCS servo loop gain to the optimum value.
- Symptoms indicating need for adjustment: Poor blayback performance
  Improper focusing. (No initial focusing, intermittent play etc)

• Measuring instruments and jigs	• Oscilloscope • Resistor (100kΩ) • AF generator
• Measuring position	• FTSB assembly CN102-5 (FOCS error), CN102-4 (FOCS gain)
• Test disc and player mode	• Suspend FOCS motor protector circuit function. • LD test disc #17,000
• Adjustment position	• FTSB assembly VR1

Connection diagrams



Out of adjustment → After adjustment

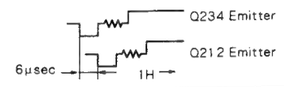
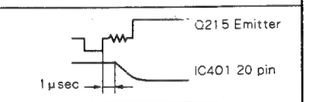
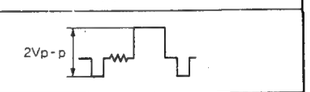
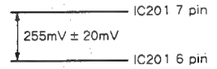
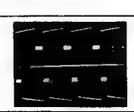
Photo 13

Adjustment procedure

1. Connect the gate of FTSB assembly Q6 (2SK184) to ground to suspend the focus motor protector circuit function.
2. Connect the resistor, AF generator, and oscilloscope to CN102 on the FTSB assembly as shown in the diagram.
3. Set the AF generator output to 1.8kHz/16Vp-p.
4. Put the oscilloscope into X-Y mode, and observe the Lissajous figures.
5. Adjust VR1 on the FTSB assembly until the Lissajous figures become symmetrical along the respective X and Y axes of the oscilloscope. (Photo 13.)
6. Disconnect the gate of FTSB assembly Q6 from ground.

Note: If the AF generator output does not exceed 16Vp-p, decrease the value of the above resistor (100kΩ) until the Lissajous figures become easy to observe. (33kΩ limit.)

11.4 ELECTRICAL ADJUSTMENT

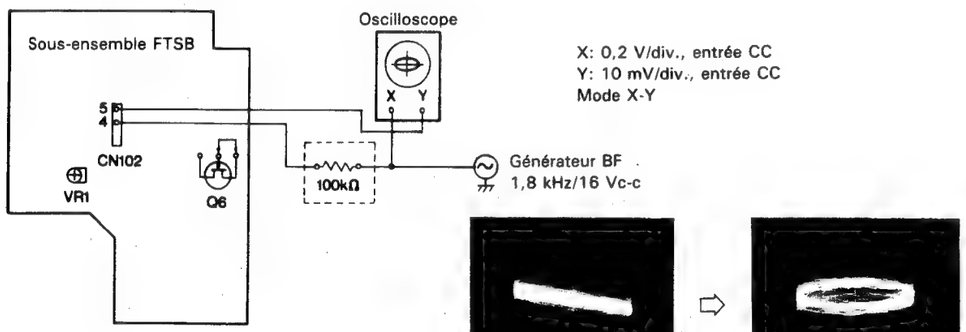
	Assembly Adjustment Name	Adjustment Point	Measurement Point	Adjustment Description	Condition for adjustment	Oscilloscope	Remarks
	ADCO assembly						
1	Decorder Clock Adjustment	VC201	IC201 3pin	Connect pin 5 and pin6 of IC202 (HD6303YP) to reset systemcontroller. Adjust the VC201 so that the Pin 3 of IC201 become 3 MHz ± 0.1 MHz.	TEST MODE (3 MHz Oscillation Mode)		
	PALB assembly (1/2)						
2	PAL Reference Clock Adjustment	VC2	Lead wire of R6	Adjust VC2 so that the frequency at the lead wire of R6 becomes 17.734475 MHz ± 110 Hz.	PAL DISC (J1) playback	Frequency counter	
3	NTSC Reference Clock Adjustment	VC1	Lead wire of R6	Adjust VC1 so that the frequency at the lead wire of R6 becomes 14.31818 MHz ± 90 Hz.	NTSC DISC (GGV1002) playback	Frequency counter	
	VDTB assembly						
4	PAL Reference H-Sync Adjustment	VC401	IC402 29 Pin (TSS OUT)	Adjust VC401 so that pin 29 (TSS OUT) of IC402 becomes 15.6250 kHz ± 0.1 Hz.	PAL DISC (J1) playback	Frequency counter	
5	VCO Center Frequency Adjustment	VR203	Q234 Emitter Q212 Emitter	Adjust VR203 so that the time difference between the video signal of Q234 emitter and that of Q212 emitter becomes 70 ± 1.4μsec. (1H + 6μsec)	NTSC DISC (GGV1002) #5,100 STILL	CH1 : 50mV/div 10μS/div CH2 : 50mV/div	
6	Burst Gate Timing Adjustment	VR401	Q215 Emitter IC401 20 Pin	Adjust VR401 so that the time from the H sync rising edge of the video signal of Q215 emitter to the beginning of fall at pin 20 of IC401 becomes 1 ± 0.1μsec.	NTSC DISC (GGV1002) playback (as required)	CH1 : 50mV/div 1μS/div CH2 : 50mV/div	
7	Video Level Adjustment	VR204	Q113 Emitter in the PALB assembly	Adjust VR204 so that the level from sync chip to white peak in the video signal of Q113 emitter in the PALB assembly becomes 2 Vp-p ± 5%.	PAL DISC (J1) Chap. 11 STILL	CH1 : 50mV/div	
8	1H Delay Video Level Adjustment	VR202	IC202 40 Pin IC202 42 Pin	Adjust VR202 so that the main video signal at pin 40 of IC202 and the 1H delay video signal at pin 42 to the same level.	NTSC DISC (GGV1002) #3,800 STILL	CH1 : 20mV/div CH2 : 20mV/div	± 3%
9	DET Level Adjustment	VR201	IC201 7 Pin IC201 6 Pin	Adjust VR201 so that the voltage at pin 6 (rotation frequency detection output) of IC201 becomes a level 255 mV ± 20mV higher than that at pin 7 (threshold voltage) with a white picture.	PAL DISC (J1) #3,001 STILL	Digital voltmeter	
10	VPS Err Level Adjustment	VR205	TV monitor screen	Adjust VR205 so that color shading in a magenta picture is minimized.	NTSC DISC (#7,201) STILL	——	
	PALB assembly (2/2)						
11	MOD. Y Level Adjustment	VR2	IC10 3 Pin IC10 5 Pin	Adjust VR2 so that the luminance level at pin 3 (subsequent to the comb filter) becomes equal to that at pin 5 (subsequent to the 3.2 MHz L.P.F.)	NTSC DISC (GGV1002) playback	CH1 : 20mV/div CH2 : 20mV/div	0 ± 3%
12	Mod Video Level Adjustment	VR102	VIDEO OUT TERMINAL	Adjust VR102 so that the output video level at VIDEO OUT TERMINAL becomes 2 Vp-p ± 5%.	NTSC DISC (GGV1002) #5,100 STILL	CH1 : 50mV/div	2Vp-p ± 5%
13	Mod S. C. Level Adjustment	VR1	IC105 13 Pin IC105 12 Pin	Adjust VR1 so that the level at pin 13 (conversion chroma level) becomes equal to that pin 12 (main chroma level).	NTSC DISC (GGV1002) playback (as required)	CH1 : 50mV/div CH2 : 50mV/div	± 3%
14	1H Delay S. C. Level Adjustment	VR101	TV monitor screen	Adjust VR101 so that flicker on the TV monitor screen is minimized.	PAL DISC Chap. 11 STILL		
	DACB assembly						
15	PLL Free-run frequency adjustment	VL101	R112(PLL) IC102(NJM082S) Pin 2	Adjust the DC voltage of the VCO controller signal to 650mV ± 100mV	Laser Vision disc with digital sound (LDD) disc hereafter — play any frame.		No digital sound, intermittent digital sound.
16	VCXO offset adjustment	VR102	R127(MDP)	Adjust VR102 to minimize the pulse width on the positive or negative side and obtain a continuous waveform.	LDD disc — play any frame		

12. RÉGLAGE DU GAIN DE LA BOUCLE DÁSSERVISSEMENT DE MISE AU POINT

- But: régler le gain de la boucle d'asservissement de mise au point à la valeur optimale.
- Symptômes d'un défaut de réglage: lecture de qualité médiocre, défaut de mise au point, lecture intermittente, etc.

• Appareils de mesures et outillage	• Oscilloscope • Résistance (100kΩ) • Générateur basse fréquence
• Point de mesure	• Borne CN102-5 (erreur de mise au point) et borne CN102-4 (gain de mise au point) du sous-ensemble FTSB
• Disque d'essai et mode de fonctionnement du lecteur	• Inhiber le circuit de protection du moteur de mise au point.
• Point de réglage	• Disque LD d'essai, image numéro 17.000 • VR1 du sous-ensemble FTSB

Schéma de raccordement



Réglage incorrect ⇨ Réglage correct

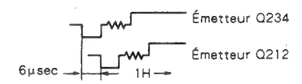
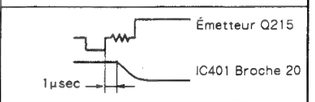
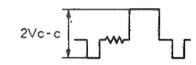
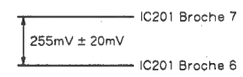
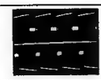
Photo 13

Procédure de réglage

1. Relier la base de Q6 (2SK184) du sous-ensemble FTSB à la masse de manière à inhiber le circuit de protection du moteur de mise au point.
2. Brancher le générateur basse fréquence, la résistance et l'oscilloscope sur CN102 du sous-ensemble FTSB comme le montre le schéma.
3. Régler la sortie du générateur sur 1,8 kHz/16 Vc-c.
4. Régler l'oscilloscope en mode X-Y et observer les figures de Lissajous.
5. Régler VR1 du sous-ensemble FTSB de sorte que les figures de Lissajous soient symétriques par rapport à l'axe des X et à l'axe des Y (photo 13).

Note: Si le générateur basse fréquence ne permet pas d'obtenir une tension de 16 Vc-c, diminuer la résistance (100kΩ) de manière que les figures de Lissajous soient facilement observables (limite inférieure de la résistance: 33kΩ).

11.4 RÉGLAGES ELECTRIQUESS

	Désignation du réglage de l'ensemble	Point du réglage	Point de mesure	Description du réglage	Condition pour un réglage	Oscilloscope	Remarques
	Ensemble ADCO						
1	Réglage de l'horloge	VC201	IC201 Broche 3	Raccorder les broches 5 et 6 du IC202 (HD6303YP) pour régler à nouveau le contrôleur du système. Régler VC201 de façon à ce que la broche 3 de IC201 devienne 3 MHz ± 0,1 MHz.	Mode d'essai (mode d'oscillation 3 MHz)		
	Ensemble PALB (1/2)						
2	Réglage D'horloge de Reference PAL	VC2	Fil du R6	Régler VC2 de façon à ce que la fréquence au fil du R6 soit 17,734475 MHz ± 110 Hz.	Lecture PAL DISC (J1)	Compteur de fréquence	
3	Réglage D'horloge de Référence NTSC	VC1	Fil du R6	Régler VC1 de façon à ce que la fréquence au fil du R6 soit 14,31818 MHz ± 90 Hz.	Lecture NTSC DISC (GGV1002)	Compteur de fréquence	
	Ensemble VDTB						
4	Réglage Synchro H. de Référence PAL	VC401	IC402 Broche 29 (TSS OUT)	Régler VC401 de façon à ce que la broche 29 (TSS OUT) de IC402 soit 15,6250 kHz ± 0,1 Hz.	Lecture PAL DISC (J1)	Compteur de fréquence	
5	Réglage Fréquence Centrale VCO	VR203	Émetteur Q234 Émetteur Q212	Régler VR203 de façon à ce que la différence de temps entre le signal vidéo de l'émetteur Q234 et celle de l'émetteur Q212 devient 70 ± 1,4 μsec. (1H + 6 μsec)	Lecture NTSC DISC (GGV1002) n° 5100 STILL	CH1 : 50mV/div 10 μS/div CH2 : 50mV/div	
6	Réglage du Calage de Porte de Chrominance	VR401	Émetteur Q215 IC401 Broche 20	Régler VR401 de façon à ce que la durée à partir du bord montant de la synchro H du signal vidéo de l'émetteur Q215 au début de la retombée à la broche 20 de IC401 soit 1 ± 0,1 μsec.	Lecture NTSC DISC (GGV1002) (si requis)	CH1 : 50mV/div 1 μS/div CH2 : 50mV/div	
7	Réglage du Niveau Vidéo	VR204	Émetteur Q113 sur l'ensemble PALB	Régler VR204 de façon à ce que le niveau à partir de la puce de synchronisation à la crête blanche dans le signal vidéo de l'émetteur Q113 sur l'ensemble PALB deviennent 2 Vc-c ± 5 %.	PAL DISC (J1) Chap. 11 STILL	CH1 : 50mV/div	
8	Réglage du Niveau Vidéo de Délai 1H.	VR202	IC202 Broche 40 IC202 Broche 42	Régler VR202 de façon à ceque le signal vidéo principal à la broche 40 de IC202 et le signal vidéo de délai 1H à la broche 42 au même niveau.	NTSC DISC (GGV1002) n° 3800 STILL	CH1 : 20mV/div CH2 : 20mV/div	± 3 %
9	Réglage Niveau DET	VR201	IC201 Broche 7 IC201 Broche 6	Régler VR201 de façon à ce que la tension à la broche 6 (sortie de détection de la fréquence de rotation) de IC201 soit à un niveau de 255 mV ± 20 mV plus haut que celui de la broche 7 (tension de seuil) avec une image blanche.	PAL DISC (J1) n° 3001 STILL	Voltmètre numérique	
10	Réglage Niveau Err. VPS	VR205	Écran du moniteur TV	Régler VR205 de façon à ce que à ce que l'ombrage de couleur pour une image magenta soit minimisé.	NTSC DISC (n° 7201) STILL	——	
	Ensemble PALB (2/2)						
11	Réglage Niveau Mode Y	VR2	IC10 Broche 3 IC10 Broche 5	Régler VR2 de façon à ce que à ce que le niveau de luminance à la broche 3 (subséquente au filtre en peigne) devienne égal à celui de la broche 5 (subséquente à 3,2 MHz L. P. F.).	Lecture NTSC DISC (GGV1002)	CH1 : 20mV/div CH2 : 20mV/div	0 ± 3 %
12	Réglage Niveau Mode Vidéo	VR102	VIDEO OUT TERMINAL	Régler VR102 de façon à ce que à ce que le niveau vidéo de sortie à VIDEO OUT TERMINAL soit 2 Vc-c ± 5 %.	NTSC DISC (GGV1002) n° 5100 STILL	CH1 : 50mV/div	2Vc-c ± 5 %
13	Réglage Niveau Mode S. C.	VR1	IC105 Broche 13 IC105 Broche 12	Régler VR1 de façon à ce que le niveau à la broche 13 (conversion du niveau de chroma) soit égal à celui de la broche 12.	Lecture NTSC DISC (GGV1002) (si requis)	CH1 : 50mV/div CH2 : 50mV/div	± 3 %
14	Réglage Niveau Délai 1H. S. C.	VR101	Écran du moniteur TV	Régler VR101 de façon à ce que à ce que le clignotement sur l'écran du moniteur TV soit minimisé.	PAL DISC Chap. 11 STILL		
	Ensemble DACB						
15	Réglage de fréquence libre PLL	VL101	R112(PLL) IC102(NJM082S) Broche 2	Régler la tension CC di signal du contrôleur VCO à 650 mV ± 100 mV	Disque laser avec son numérique (LDD) —Lire n'importe quel cadre.		Pas de son numérique, son numérique intermitant.
16	Réglage de décalage intermitant	VR102	R127(MDP)	Régler VR102 pour minimiser la largeur d'impulsion sur le côté positif ou négatif et obtenir une forme d'onde continue.	Disque LDD—Lire n'importe quel cadre.		

12. AJUSTE DE LA GANANCIA DEL SERVOBUCLE DE FOCS

- Objetivo: Ajuste de la ganancia del servobucle de FOCS al valor óptimo.
- Síntomas que indican la necesidad del ajuste: Mala reproducción Enfoque incorrecto. (Falta de enfoque inicial, reproducción intermitente, etc.)

• Instrumentos y portapiezas de medición	• Osciloscopio • Resistor (100kΩ) • Generador de AF
• Posición de medición	• CN102-5 del conjunto FSTB (error de FOCS), CN102-4 (ganancia de FOCS)
• Disco de pruebas y modo del tocadiscos	• Función suspendida del circuito protector del motor FOCS. • Disco de pruebas LD n.# 17.000
• Posición de ajuste	• VR1 del conjunto FTSB

Diagramas de conexión

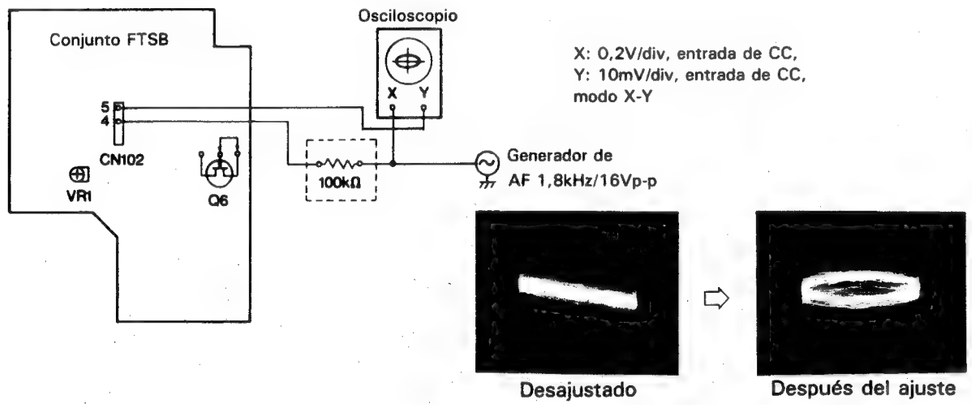


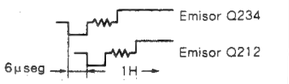
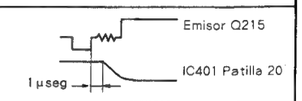
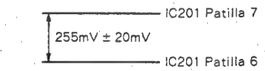
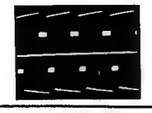
Foto 13

Procedimientos para el ajuste

1. Conecta la compuerta de Q6 (2SK184) del conjunto FTSB a masa para suspender la función del circuito protector del motor de foco.
2. Conecte el resistor, el generador de AF, y el osciloscopio con CN102 del conjunto FTSB tal como se muestra en el diagrama.
3. Ajuste la salida del generador de AF a 1,8kHz/16Vp-p.
4. Ponga el osciloscopio en el modo X-Y, y observe las figuras de Lissajous.
5. Ajuste VR1 del conjunto FTSB hasta que las figuras de Lissajous sean simétricas en los ejes respectivos X y Y del osciloscopio. (Foto 13.)
6. Desconecte la compuerta Q6 del conjunto FTSB de masa.

Nota: Si la salida del generador de AF no excede los 16Vp-p, disminuya el valor del resistor anterior (100kΩ) hasta que las figuras de Lissajous sean fáciles de observar. (Límite a 33kΩ.)

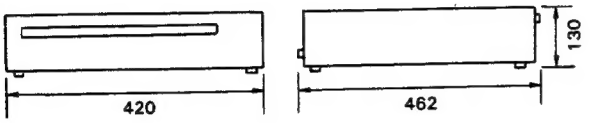
11.4 AJUSTES ELECTRICOS

	Designación de ajuste de conjuntos	Punto de ajuste	Punto de medicón	Descripción de ajustes	Condición durante el ajuste	Osciloscopio	Remarks
	Conjunto ADCO						
1	Ajuste del reloj del Decodificadcor	VC201	IC201 Patilla 3	**Conecte las patillas 5 y 6 de IC202 (HD6303YP) para reponer el controlador del sistema. Ajuste VC201 hasta que en la patilla 3 del IC201 se obtenga 3 MHz ± 0.1 MHz.**	MODO DE PRUEBA (Modo de oscilación de 3 MHz)		
	Conjunto PALB (1/2)						
2	Ajuste del Reloj de Referencia PAL	VC2	Conductor de R6	Ajuste VC2 hasta que la frecuencia en el conductor de R6 sea de 17.734475 MHz ± 110 Hz.	Reproducción de PAL DISC (J1)	Frecuencímetro	
3	Ajuste del Reloj de Referencia NTSC	VC1	Conductor de R6	Ajuste VC1 hasta que la frecuencia en el conductor de R6 sea de 14.31818 MHz ± 90 Hz.	Reproducción de NTSC DISC (GGV1002)	Frecuencímetro	
	Conjunto VDTB						
4	Ajuste de H Sync. de Referencia PAL	VC401	IC402 Patilla 29 (TSS OUT)	Ajuste VC401 hasta que la patilla 29 (TSS OUT) de IC402 sea de 15.6250 kHz ± 0,1 Hz.	Reproducción de PAL DISC (J1)	Frecuencímetro	
5	Ajuste de Frecuencia Central de VCO	VR203	Emisor Q234 Emisor Q212	Ajuste VR203 hasta que la diferencia de tiempo entre la señal de video del emisor Q234 y la del emisor Q212 sea de 70 ± 1.4μseg. (1H + 6μseg)	NTSC DISC (GGV1002) n.°5100 STILL	CH1 : 50mV/div 10μS/div CH2 : 50mV/div	
6	Ajuste de la Temporización de la Compuerta de Sincronización Cromática	VR401	Emisor Q215 IC401 Patilla 20	Ajuste VR401 hasta que el tiempo del borde ascendente de sincronismo H de la señal de video del emisor Q215 hasta el comienzo de la caída en la patilla 20 de IC401 sea de 1 ± 0.1μseg.	Reproducción de NTSC DISC (GGV1002) (cuando se requira)	CH1 : 50mV/div 1μS/div CH2 : 50mV/div	
7	Ajuste del Nivel Video	VR204	Emisor Q113 en el conjunto PALB	Ajuste VR204 hasta que el nivel del chip de sincronismo al pico del blanco de la señal de video del emisor Q113 en el conjunto PALB sea de 2 Vp-p ± 5%.	PAL DISC (J1) Chap. 11 STILL	CH1 : 50mV/div	
8	Ajuste del Nivel de Video de Retardo de 1H	VR202	IC202 Patilla 40 IC202 Patilla 42	Ajuste VR202 hasta que la señal de video principal en la patilla 40 de IC202 y la señal de video de retardo 1H en la patilla 42 al mismo nivel.	NTSC DISC (GGV1002) n.°3800 STILL	CH1 : 20mV/div CH2 : 20mV/div	± 3%
9	Ajuste del Nivel de DET	VR201	IC201 Patilla 7 IC201 Patilla 6	Ajuste VR201 hasta que la tensión en la patilla 6 (salida de detección de frecuencia de rotación) de IC201 alcance un nivel 255 mV ± 20 mV superiror a la patilla 7 (tensión de umbral) con una imagen blanca.	PAL DISC (J1) n.°3001 STILL	Voltímetro digital	
10	Ajuste del Nivel del Error de VPS	VR205	Pantalla del monitor de TV	Ajuste VR205 hasta que la sombra de color en una imagen magenta sea mínima.	NTSC DISC (n.°7201) STILL	——	
	Conjunto PALB (2/2)						
11	Ajuste del Nivel de MOD. Y	VR2	IC10 Patilla 3 IC10 Patilla 5	Ajuste VR2 hasta que el nivel de luminancia en la patilla 3 (siguiente al filtro de peine) sea igual que en la patilla 5 (siguiente a 3,2 MHz L. P. F.)	Reproducción de NTSC DISC (GGV1002)	CH1 : 20mV/div CH2 : 20mV/div	0 ± 3%
12	Ajuste del Nivel de MOD. Video	VR102	VIDEO OUT TERMINAL	Ajuste VR102 hasta que el nivel de salida de video en VIDEO OUT TERMINAL sea 2 Vp-p ± 5%.	NTSC DISC (GGV1002) n.°5100 STILL	CH1 : 50mV/div	2Vp-p ± 5%
13	Ajuste del Nivel de MOD. S. C.	VR1	IC105 Patilla 13 IC105 Patilla 12	Ajuste VR1 hasta que el nivel en la patilla 13 (nivel de conversión de croma) sea igual que en la patilla 12 (nivel de croma principal).	Reproducción de NTSC DISC (GGV1002) (cuando se requiera)	CH1 : 50mV/div CH2 : 50mV/div	± 3%
14	Ajuste del Nivel de S. C. de Retardo 1H	VR101	Pantalla del monitor de TV	Ajuste VR101 hasta que el parpadeo en la pantalla del monitor de TV sea mínimo.	PAL DISC Chap. 11 STILL		
	Conjunto DACB						
15	Ajuste de la frecuencia de oscilación libre del PLL	VL101	R112(PLL) IC102(NJM082S) Patilla 2	Ajuste la tensión de CC de la señal del controlador del VCO a 650 mV ± 100 mV.	Disco Laser Vision con disco de sonido digital (LDD) después—reproduzca cualquier fotograma.		Ausencia de sonido digital, sonido digital intermitente.
16	Ajuste del desplazamiento del VCXO	VR102	R127(MDP)	Ajuste VR12 hasta reducir al mínimo la anchura de pulso en el lado positivo o negativo y obtener una forma de onda continua.	Disco LDD—reproduzca cualquier fotograma.		

12. SPECIFICATIONS

1. General

System ..... LaserVision Disc system
Disc in use
In KARAOKE mode ..... Karaoke disc
In NORMAL mode ..... PAL disc only
Power requirements ... AC 220/240 V (switchable) 50/60 Hz
Power consumption ..... 60 W
Weight ..... 11.4 kg
Dimensions ... 420 (W) × 462 (D) × 130 (H) mm



Operating temperature ..... +5°C ~ +35°C (41°F~95°F)
Operating humidity ..... 5~90%
(There should be no condensation of moisture)

2. Video characteristics

Video output
Level ..... 1 Vp-p nominal, sync. negative, terminated
Impedance ..... 75 Ω unbalanced
Terminal ..... RCA jack

3. Audio characteristics

Number of channels 2
Output level
During analog audio output ..... 200 mVrms (1 kHz, 40 %)
During digital audio output ..... 200 mVrms (1 kHz, -20dB)
Terminal ..... Both RCA jacks

4. Other terminals

COINBOX connection terminal ..... 8 pin DIN

5. Functions

KARAOKE/NORMAL/BGV mode ..... switchable
• CX system switching (automatic switching)
NORMAL mode (BGV mode):
• Play (Auto Play)
• SCAN (forward, reverse)
• Auto Repeat (only in BGV mode)
KARAOKE mode:
• Programmed song selection ... maximum 5 songs
• Changing song ..... within 30 seconds after starting playback.
• Cancelling song ..... within 30 seconds after starting playback

6. Accessories

• Audio connecting cord 1
• Video connecting cord 1
• Operating instructions 1

**Actual playback time differs for each disc.*

NOTE:
Specifications and the design subject to possible modifications without notice due to improvements.

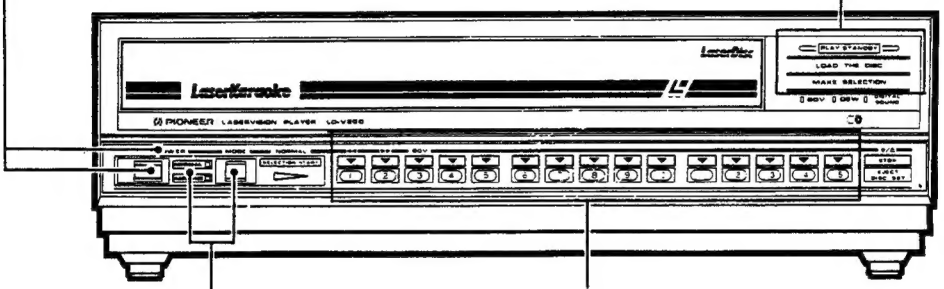
13. PANEL FACILITIES

Front

POWER switch (■ OFF, ▬ ON)/indicator
Press this button to switch the power on or off. When the power is on, the power indicator lights up.

Operational guidance indicators

PLAY/STANDBY:	Blinks during search mode and lights continuously during playback.
LOAD THE DISC:	Indicates that there is no disc in the player.
MAKE SELECTION:	Lights up in KARAOKE mode. Also, lights up when a certain amount of money is paid into the COINBOX. Goes off when the song select button is pressed.



MODE select switch/indicator
The mode can be switched while the COINBOX MODE switch of the rear side is being depressed.

- **KARAOKE mode (KARAOKE indicator lit up)**
This is the mode for playing back a Karaoke disc. The song is selected by pressing the song select buttons from 1 to 15.

- **NORMAL mode (NORMAL indicator lit up)**
This is the mode for playing back a regular LaserVision disc (PAL disc only). In this mode, the song select button 1 is used as the fast reverse (◄◄) button and the button 2 is used as the fast forward (►►) button. In NORMAL mode, pressing the SONG SELECT button 3 (BGV button) puts the player into BGV mode.

Automatically set to KARAOKE when switching the power ON.

Song select button/indicator
When the button is pressed to select a song, the indicator above that button lights up and the player starts the song whose number was pressed. If you want to play more than one song on the same side of the same disc, press the buttons for the songs you want to play and they are all played in the order you pressed them. This program select function can select up to 5 songs. While one song is being played, the indicator over the button for the next song to be played blinks.

You can not program the player to play the same song more than once.

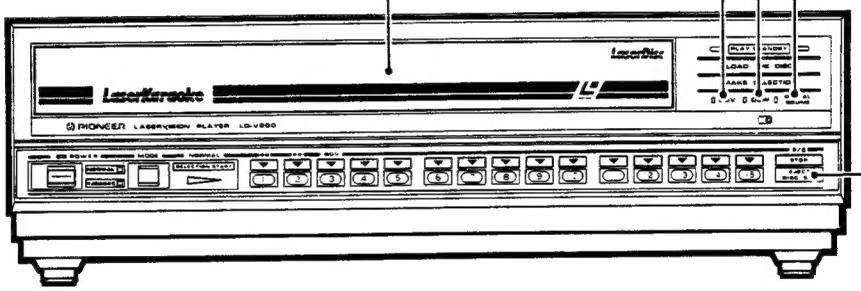
Door (disc table)
Switch the power ON and press the STOP/EJECT DISC SET button. The disc table will eject to the specified position. Press the button again to eject the disc table further to the disc set position, and place the disc.

When the disc table ejects to the specified position, it will retract if pushed by hand; it will eject further to the disc set position if pulled towards you.

BGV indicator
Lights up in BGV mode.

DEW indicator
Blinks when the player cannot operate properly because of DEW.

DIGITAL SOUND indicator
Lights up when LaserVision discs with digital sound are being played and when no discs are played.



Precautions on Automatic Loading
The player has an automatic loading mechanism. Operate the disc table by using the STOP/EJECT DISC SET button. Do not apply extra force to the disc table during operation, as that may cause malfunction.

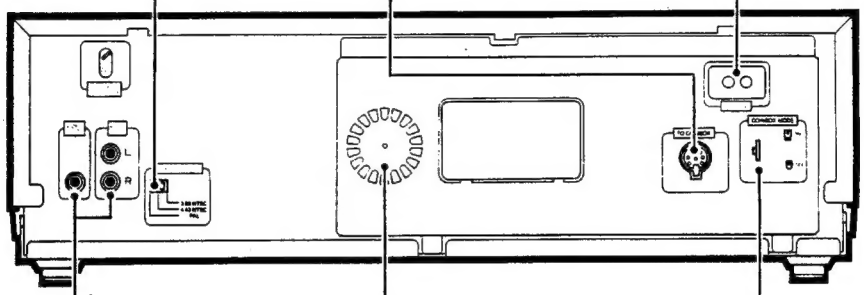
STOP/EJECT DISC SET button
In NORMAL mode (including BGV mode), playback will stop and the disc table will eject when this button is pressed. In KARAOKE mode, this button is used for ejecting the disc and also for changing or cancelling songs.

Rear

MODE SELECTOR switch
Switches mode according to the type of TV set and disc to be used. (See next page)

TO COINBOX terminal
(8 pin DIN connector)
When operating charged Karaoke play, connect this terminal to the COINBOX (use the control cord supplied with the COINBOX).

~ AC IN
Connect this to a wall socket (220 or 240 V AC, 50/60 Hz) using a 2-pin power cord. A suitable cord should be obtained from your dealer.



VIDEO OUT terminal (pin jack)
- Connect this terminal to the video input terminal of the color monitor (with the video cable supplied).
- When a mixing amplifier with video input terminal is used, connect this terminal to the amplifier.
- When a COINBOX with video and audio input terminal is used, connect this terminal to the COINBOX.

AUDIO OUT terminal (stereo pin jack)
- Connect to the stereo mixing amplifier (with the audio cable supplied).
- When a COINBOX with video and audio input terminals is used, connect this terminal to the COINBOX.

Do not connect to the PHONO input terminal of the amplifier.

COINBOX MODE switch
- ON (released): control mode by COINBOX. The player does not operate without the COINBOX (option) connected to the COINBOX terminal.
- OFF (depressed): control mode by the front panel switch. KARAOKE, NORMAL, and BGV modes can be operated by the MODE select switch on the front panel.

Ventilation opening
A fan is provided inside to ensure ventilation and prevent the inner temperature from increasing. Do not block this opening.